Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME VIII.] NEW-YORK, MARCH 19, 1853. [NUMBER 27.

THE
Scientific American,
CIRCULATION 17,000.
PUBLISHED WEEKLY
At 128 Fulton street, N. Y., (Sun Buildings)
BY MUNN & COMPANY

Hotchkiss & Co., Boston.
Dexter & Bro., New York City.
Stokes & Bro., Philadelphia.
G.J. LeCount & Strong, San Francisco, Cal
Cooke, Kinney & Co. ditto.
B. Dawson, Montreal, . E.
M. Boullemet, Mobile, Ala.
E. W. Wiley, New Orleans, La
E. G. Fuller, Halifax, N. S.
M. M. Gardissal & Co., Paris

Responsible Agents may also be found in all the principal cities and towns in the United States.

Terms—$2 a-year—$1 in advance and the remainder in 6 months.

USEFUL RECEIPTS.

To Make Drying Oil.

Take any quantity of linseed oil and put it in a clean iron pot, and hang it over a slow fire, and when it attains to a good heat add litharge and white vitriol (sulphate of zinc) in very small quantities, until the whole is added, when it should be boiled slowly for two or three hours. Twelve parts of litharge to three of the sulphate of zinc, are employed, and two ounces of this mixture to one pint of oil, does very well. If these drying materials were added hastily to the oil, it would fume over on the fire. Care must be exercised to prevent such an accident. After the mixture is boiled for two or three hours, the oil is taken off, and suffered to cool, when a sediment falls to the bottom, and the clear is poured off as drying oil. The sediment when mixed with whiting or ground chalk, and dry sand, makes a capital cement for filling in seams in the roofs of buildings, or any crack to render the same impervious to water. It becomes as hard as stone in the course of a few weeks, and is especially adapted for the joints of stones in exposed situations. We have been enquired of by three or four correspondents lately respecting the above drying oil; we have only to add that if an ounce of resin be added to every pint of oil when boiling, it will improve the quality of the oil in no small degree.

Marine Glue.

As we have had many enquiries respecting this kind of glue, we will give the receipt as it comes to us. Take one pound of india rubber and then dissolve it in the exact quantity of naphtha, or oil of tar to render it moderately thin (about a gallon) to which is added shellac, and the whole allowed to mascerate for ten days, until it attains to a cream like consistency. After which more shellac is added to make it pretty stiff, when it is heated and then poured out into plates. It is heated to 250°, when applied. The mixture is that of india rubber and shellac dissolved in naphtha. It is insoluble in water and not affected by the heat of the sun.

One Cent a Mile Railroad Fare.

The New York State Engineer and Surveyor, McAlpine, in his report to the Legislature of New York, in 1852, says:—An important fact is also established, which up to this time had been doubted by most men conversant with railroad transports, which is, that passengers can be transported at an expense of less than one cent per mile. This result is obtained as a rule, when the average loads are 90 passengers each mile run.

Wash for Fruit Trees.

Mix one gallon soft soap, one quart of salt, and one pound of flour sulphur, to be put on with a white-wash brush. If the bark of your trees is mossy, have them scraped before the mixture is applied.

Dissolve some borax in water and use for water to shave, when it will be found to make the soap more pleasant and the operation of shaving much easier.

MACHINERY FOR REDUCING METALLIC BARS.

Figure 1.

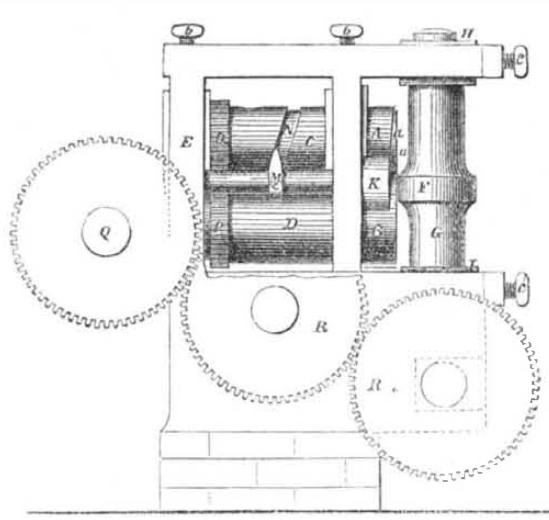
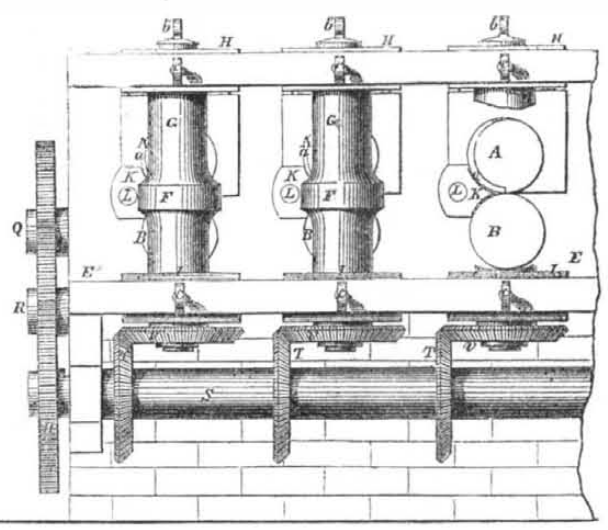


Figure 2.



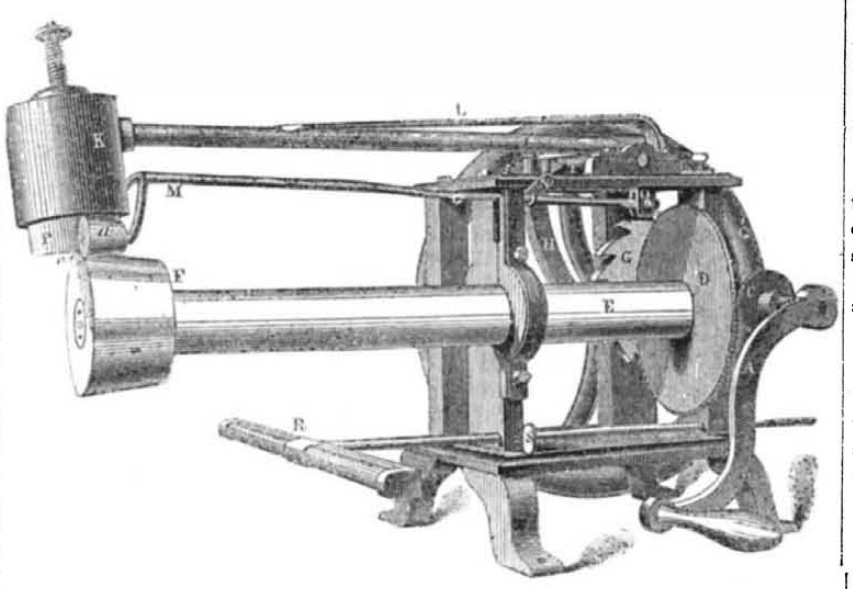
The annexed engravings are views of improvements in machinery for reducing metal bars into the shape of file-blanks, &c., and for which a patent was granted on the 8th of last Jan. (1853) to the inventor, Dexter H. Chamberlin, of Boston, Mass, assignor to Cyrus G. Howard, of the same place.

Figure 1 is a side elevation, and figure 2 is an end elevation. The same letters of reference indicate like parts.

A and B are two horizontal rollers applied upon the ends of the two parallel shafts, C D, which are supported in suitable bearings in frame, E. The end of one of these rollers has a grooved cavity, *a a*, formed in it, being made wider at one end that it is at the other. Against the said cavity, and the ends of the two rollers, a third roller, F, is arranged. The curved surface of F presses and rotates against the ends of the rollers, A B; G is the vertical shaft of roller, F, and H I are its bearings; K is a metal bolster curved to fit into the annular space between the peripheries of rollers, A and B. This bolster is fixed upon one end of a slide, L, which has a free endwise movement. This slide has an arm, M, which projects into a cam groove, N, cut around shaft, C, and in such a manner as to keep the front end of the bolster on a plane or even line with the reducing edge of the cavity, *a*, during the rotary movement of said cavity against it. The object of bolster, M, is to prevent the metal rod during its elongation from being spread out and drawn in between the cylindrical parts of the rollers, so as to form a *fin* on the side of the rod, which would be likely to occur, were the sliding bolster not used. The two shafts, C D, are geared together by gears, O P, and on the outer end of the upper shaft, C, there is a wheel, Q, made to engage with another, R, having the same diameter, and placed on a horizontal shaft, S. This latter shaft is connected with the shafts, G, by means of bevel gears, T T T, *v v v*, of equal diameter. The reduction of a rod on its opposite sides is effected by running it in the cavity, *a*, and between the rollers during their revolutions, the movable or sliding bolster operating to prevent the splaying out or squeezing of the metal so as to form a *fin*. *b b'*, *c c'* are adjustable screws. This improvement in machinery for rolling down metal bars, is adapted for rolling file-blanks, keys for machinery tork fangs, spikes, and various articles of hardware. The engravings represent a mill arranged for file-blanks; they pass from one roll to the other, the shaping dies varying in size of the opening in each roll; the blank is completed at one heat (all but the tang). These improvements appear to us to be good and deserve attention by all interested.

More information may be obtained by letter addressed to the assignee Cyrus G. Howard, No 20 Pearl street, Boston, Mass.

MACHINE FOR DOUBLE SEAMING.



This engraving is a perspective view of a machine for tinsmiths for double seaming, for which a patent was granted on the 12th of last October (1852) of which Messrs. Roys & Wilcox, East Berlin, Conn., the skilful and energetic manufacturers of such tools, are the assignees. W. Hamilton is the inventor.

A is the handle which works the machine; C is a pinion on the spindle of handle, A, and D is a bevel wheel on the back end of the shaft, E, of the rotating anvil, F; G' is a balance wheel on the axle of A, and G is the cam wheel which operates the trip, H, of mallet, K, which is hollow and receives the wooden block, P; L is a spring resting on the handle, J, to throw it back to its proper position; M is a holder with fork end, one leg on each side with a roller, *a a*, on it. The tin ware article, the seam of which is to be laid down, is placed over F, and is held fast in its place by *a a* pressing upon it; the catch, N, holding M in its place; R is a gauge rod for the article, according to its depth. By turning handle, A, the shaft, E, is rotated and so is the article to be acted upon by the mallet, P, so that as it rotates, the mallet gives rapid blows upon the seam to flatten it down true and uniform all around. This machine operates for this purpose much better than rollers can. Different gauges like, K, are employed for pans, cans, &c., of different depths, and the round anvil, F, can be replaced with one of a greater or less diameter, so as to act upon vessels of various sizes; S is a set screw to fasten the gauge, R. This machine operates well and produces excellent work; the principle of its operation for double seaming is good.

The holder can be thrown up on its axis, O to let the pan be taken off and a new one put on. The hammer can also be raised for the same purpose at pleasure.

More information may be obtained by letter addressed to Messrs Roys & Wilcox.

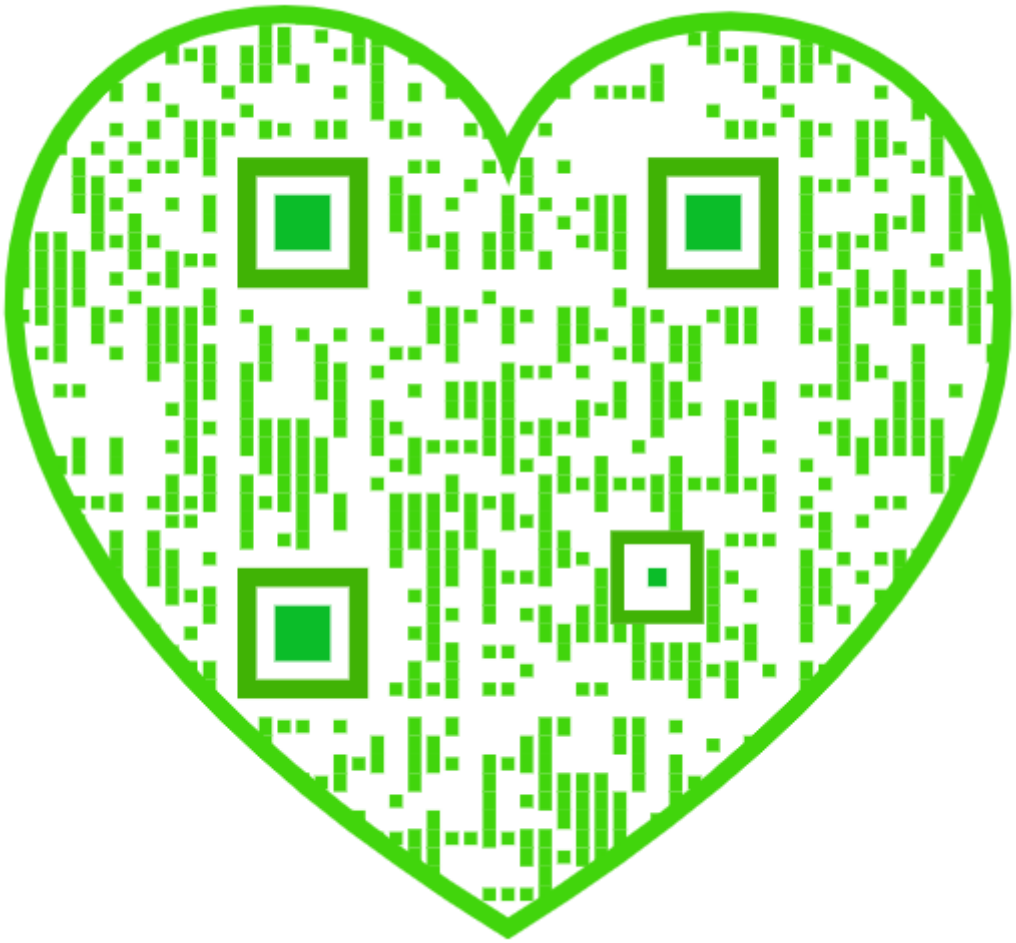
England Coming to America for Coal.

Capt. Ericsson, as reported in the "Washington Republic." stated in his speech before the Virginia Legislators, "that he used only anthracite coal, and as in a few years hot air engines would be the only kind used, *England would come here for coal.*" Is Capt. Ericsson so ill-informed of the supply of anthracite in England, not to know that there are more than 3,000 square miles of anthracite and culm in England and Ireland—far more than there is in Pennsylvania. The Collins' Line of steamers coal up with Welsh coal—equal to our anthracite—at Liverpool. For proof of the correctness of what we say, see Mr. Taylor's book on the "Statistics of coal in America, England, and other countries.

An electric telegraph is to be immediately constructed between Zara and Agram, by which means news from the east will reach England two days sooner than at present.

The British Electric Telegraph Company have declared a yearly dividend of 6½ per cent., free of income tax.

© 1853 SCIENTIFIC AMERICIAN, INC



MISCELLANEOUS.

Photographic Landscapes on Paper.

The following is a description of processes for obtaining photographic pictures of landscapes on paper, as practiced by J. Stewart, brother-in-law of Herschel, the astronomer, and described by him in a letter to that gentleman, which has recently been published in a number of our foreign exchanges, and which will be found of great interest to many of our readers.

The following observations are confined to negative paper processes, divided into two—the wet and the dry. The solutions I employ for both these processes are identical and are as follows:—

Solution of iodide of potassium, of the strength of five parts of iodide to 100 of pure water.

Solution of aceto-nitrate of silver in the following proportions; 15 parts of nitrate of silver; 20 of glacial acetic acid; 150 of distilled water.

Solution of gallic acid, for developing a saturated solution.

Solution of hyposulphite of soda; of the strength of one part of hyposulphite of soda to from six to eight parts of water.

The solutions employed are thus reduced to their simplest possible expression, for it will be observed that in iodizing I employ neither rice-water, sugar of milk, fluorine, cyanure, nor free iodide, &c.; but a simple solution of iodide of potassium (the strength of this solution is a question of considerable importance, not yet, I think, sufficiently investigated).

For both the wet and the dry processes, I iodize my paper as follows. In a tray containing the above solution, I plunge, one by one, as many sheets of paper (twenty, thirty, fifty, &c.,) as are likely to be required for some time. This is done in two or three minutes. I then roll up loosely the whole bundle of sheets, while in the bath; and picking up the roll by the ends, drop it into a cylindrical glass vessel with a foot to it, and pour the solution therein, enough to cover the roll completely (in case it should float up above the surface of the solution, a little piece of glass may be pushed down to rest across the roll of paper, and prevent its rising). The vessel with the roll of paper is placed under the receiver of an air-pump, and the air exhausted; this is accomplished in a very few minutes, and the paper may then be left five or six minutes in the vacuum.—Should the glass be too high, (the paper being in large sheets) to be inserted under a pneumatic pump-receiver, a stiff lid lined with india-rubber, with a valve in the centre communicating by a tube with a common direct-action air-pump may be employed with equal success. After the paper is thus soaked in vacuo, it is removed and the roll dropped back into the tray with the solution, and then sheet by sheet picked off and hung up to dry, when as with all other iodized paper, it will keep for an indefinite time.

I cannot say that I fully understand the *rationale* of the action of the air-pump, but several valuable advantages are obtained by its use:—1st, the paper is thoroughly iodized, and with an equality throughout, that no amount of soaking procures, for no two sheets of paper are alike, or even one perfect throughout in texture; and air bulbs are impossible. 2d. The operation is accomplished in a quarter of an hour, which generally employs one, two or more hours. 3rd. To this do I chiefly attribute the fact that my paper is never solarized even in the brightest sun; and that it will bear whatever amount of exposure is necessary for the deepest and most impenetrable shadows in the view, without injury to the bright lights.

Wet Process.—To begin with the wet process. Having prepared the above solution of aceto-nitrate of silver, float a sheet of the iodized paper upon the surface of this sensitive bath, leaving it there for about ten minutes. During this interval, having placed the glass or slate of your slider quite level, dip a sheet of thick, clean white printing (unsized) paper, in water, and lay it on the glass or slate as a wet lining to receive the sensitive sheet. An expert manipulator may then, removing the sensitive sheet from the bath, extend it (sensitive side uppermost) on this wet paper lining, without allowing any air globules to intervene. But it is difficult, and a very simple and most effectual mode of avoiding air globules, particularly in handling very large sheets, is as follows:—Pour a thin layer of water (just sufficient not to flow over the sides) upon the lining paper, after you have extended it on your glass or slate, and then lay down your sensitive paper gently and by degrees, and floating as it were on this layer of water; and when extended, taking the glass and papers between the finger and thumb, by an upper corner, to prevent their slipping, tilt it gently to allow the interposed water to flow off by the bottom, which will leave the two sheets of paper adhering perfectly and closely, without the slightest chance of air-bubbles; it may then be left for a minute or two, standing upright in the same position, to allow every drop of water to escape; so that when laid flat again, or placed in the slider, none may turn back and stain the paper. Of course the sensitive side of the sheet is thus left exposed to the uninterrupted action of the lens, no protecting plate of glass being interposed—and even in this dry and warm climate, I find the humidity and the attendant sensitiveness fully preserved for a couple of hours.

To develope views thus taken, the ordinary saturated solution of gallic acid is employed, never requiring the addition of nitrate of silver; thus preserving the perfect purity and varied modulation of the tints. The fixing is accomplished as usual with hyposulphite of soda, and the negative finally waxed.

Dry Process.—In preparing sheets for use when dry, for travelling, &c., I have discarded the use of previously waxed paper—thus getting rid of a troublesome operation—and proceed as follows:—Taking a sheet of my iodized paper, instead of floating it, as in the wet process, on the sensitive bath, I plunge it fairly into the bath, where it is left to soak for five or six minutes; then, removing it, wash it for about twenty minutes in a bath, or even two, of distilled water to remove the excess of nitrate of silver, and then hang it up to dry, in lieu of drying it with blotting-paper. Paper thus prepared possesses a greater degree of sensitiveness than waxed paper, and preserves its sensitiveness, not so long as waxed paper, but sufficiently long for all practical purposes, say thirty hours, and even more. The English manufactured paper is far superior for this purpose to the French. To develope these views, a few drops of the solution of nitrate of silver are required in the gallic-acid bath. They are then finally fixed and waxed as usual.

These processes appear to me to be reduced to nearly as great a degree of simplicity as possible. I am never troubled with stains or spots, and there is a regularity and certainty in the results that are very satisfactory. You will have observed too, how perfectly the aerial perspective and gradation of tints are preserved; as also how well the deepest shadows are penetrated and developed—speaking, in fact, as they do to the eye itself in Nature. In exposing for landscape, I throw aside all consideration of the bright lights, and limit the time with reference entirely to the dark and feebly-lighted parts of the view; with a 3¼ inch lens the time of exposure has thus varied from ten minutes to an hour and a half, and the action appears to me never to have ceased.

The influence of the air-pump in this appears to be very sensible, and deserving of further examination and extension. I purpose not only to iodizing, but rendering the paper sensitive with the action of the air-pump, by perhaps suspending the sheet after immersion in the nitrate bath under the receiver of the air pump for a few minutes, before exposure in the camera, or by some other manœuvre having the same object in view.

I should add, that I have chiefly employed Canson's French paper in iodizing with the aid of the pump. Few of the English manufactured papers are sufficiently tenacious in their sizing to resist the action of the pump, but they may easily be made so; and were, in short, the English paper, so far superior in quality to the French, only better sized, that is with glue less easily soluble, even though more impure, there is scarcely any limit to the beauty of the views that might be produced.

The Crystal Palace.

We make it a rule to keep our readers well posted up in all that concerns their interest, and therefore feel bound, by virtue of our position as the "Advocate of Inventors and Mechanics in general," to watch with a jealous eye the proceedings of the above Association. Notwithstanding all the *fanfonarade* exhibited by its officials, in boasting that they have received five times more applications than they have space to afford, we doubt the fact very much. It appears like a storekeeper's puff to get rid of his goods, which are so exceedingly cheap that all the world is disputing who shall give his money for them. However, the time for making applications is now gone by, and no others than the *lucky* individuals who made their applications in time are to be honored with the title and the *privileges* of exhibitors. Let us examine, however, what these privileges are, and then perhaps the too tardy applicants, who number to the successful exhibitors five to one, according to the statistics of the Crystal Palace office in Broadway, will not be ready to die of despair. The "New York Exhibition of the Industry of all Nations" is modelled, as we are informed, on that held in London, the year before last, and really, if we take into account the self-assumption and arrogance of its jacks in office, it is on a grander scale. The future exhibitors have put their heads into a noose out of which, it strikes us forcibly, they will not be able to draw them without paying for the privilege. The orders of the Association of the Crystal Palace are as peremptory as those of the Autocrat of Russia, and the obedience of the exhibitors expected to be as prompt as that of his serfs. The articles intended for exhibition must be on the spot by the first week in April, but the Company give no guarantee that there will be a roof over the building at that time to protect them from the weather. The quality of space required was to be specified in the application, but no satisfaction is afforded as to where the articles will be placed, of course the favored few or many will not have theirs in the back ground. And, as a climax, the exhibitors will have to pay for admission, it being very friendly and patronizingly observed, that it will be cheaper to take a season ticket, by this means an exhibitor, who may require to go inside the building every day, at least once and perhaps several times, will be able to do so at a cheaper rate—just as cheap as the public. This is a provident foresight, for which the Association ought to vote their Directors at least a leather medal, to be distributed with the other prizes, as by this means, if from nothing else, they will draw some interest for their shares from the exhibitors, on whose talents and industry they are at the same time dependent for their success. Now this is really too bad, and we do sincerely hope that the exhibitors will protest, *en masse*, against this barefaced injustice; it is but fair that they should have free access at all times to the interior of the building, or else of what benefit will it be to them to entrust their property for exhibition. To suppose that an individual is to do so, and yet not to have free access to the building when it is open, is a monstrous absurdity, and if known at a seasonable time, instead of having five times too many applications, the Association would not have had one, that is, not from a manufacturer or mechanic of any respectability. There may be a class of exhibitors who will have no objection to pay for admission, speculating upon the sale of some trumpery article, but the majority of *bona fide* exhibitors, we are quite sure, will object to any such tax, which ought to have been publicly stated at the time that the Company put out their original advertisement. We therefore advise the Directors to retract this demand, or if they have not publicly made it, to abstain from doing so, for as soon as it is generally known they may depend upon it that such an imposition will be protested against. The majority of the exhibitors are not aware of their intention to do so and it is but right that it should be known by them; it is however certain that such will be the case, and therefore we look upon the evasive conduct of the managers of the Association in not giving a decided answer to inquiries upon this point as mean and disgraceful in the extreme. If the exhibitors are to be fleeced, as is evidently intended, let them know it, and then they will be prepared how to act, but at present nearly all are ignorant of this attempt upon their pockets. There are some other matters connected with this enterprise on which we wish to speak, but we will defer it to another time; the proceedings of the Association as far as the interests of inventors and others are concerned, we shall continue to closely watch.

Adulteration of Lard.

Tee Pharmaceutical Society of London have taken up the subject of the adulteration of American lard, and are submitting various samples to analysis.

[The adulteration of American lard above alluded to, and which is being made the subject of scientific inquiry in England, can be easily explained as far as regards our own country:—it is of constant occurrence, in the West, that many of the hogs fall down through fatigue or weakness during their journey in droves to the Eastern markets, and have to be killed on the spot. As the only available means of turning their carcasses to pecuniary advantage, they are submitted to the action of a press, and thus forced down into a substance sold as lard, which, from not having been melted, must necessarily contain a large amount of foreign matter, the product of the flesh and blood of the animal. It would, however, be preferable to melt down afterwards this substance, when, perhaps, the adulteration complained of would be found inaccurate.

Arctic Whale Fishery.

Capt. Penny, the eminent Arctic navigator, has at length succeeded (says the "London Literary Gazette") in forming a Company for prosecuting the Whale Fishery, and founding a permanent settlement in the Arctic Regions. He designs to employ propellers in whale fishing in the bays and inlets of Davis' Straits. A Colony is to be founded in the inlet known as Northumberland Inlet, or Hogarth Sound, in about the same latitude as Archangel. In this locality there are not only excellent fishing grounds, but great store of mineral wealth especially of plumbago. The Company will send out two screw steamers of 500 tons each, in the spring months, to the seas between Greenland and Nova Zembla, and later in the year the steamers would start for Hogarth Sound, so as to arrive there before August. They would remain there until the ice forms in November, when they would return to England with the produce, leaving the settlers to prosecute the inshore fishery, and store up the proceeds until the return of the steamers in the spring.

Singular Geological Fact.

At Modena, in Italy, within a circle of four miles around the city, whenever the earth is dug and the workmen arrive at the distance of sixty-three feet, they come to a bed of chalk, which they bore with an auger, five feet deep. They then withdraw from the pit before the auger is removed, and upon its refraction the water bursts up with great violence, and quickly fills the well thus made, the supply of water being neither affected by rains or droughts. At the depth of fourteen feet are found the ruins of an ancient city,—houses, paved streets, and masonic work. Below this again is a layer of earth, and at twenty-six feet walnut trees are found entire, with leaves and walnuts upon them. At twenty-eight feet soft chalk is found, and below this vegetables and trees.

Fast Travelling.

The "Cleveland Herald" states that an Engineer who runs from Buffalo to State Line, says he will agree to run his locomotive with one passenger and one baggage car attached, from Buffalo to the State Line, sixty-nine miles in sixty-nine minutes. A locomotive, with a passenger car attached, made the run at the rate of a mile a minute, on the occasion of the railroad celebration at Erie last Fall.

The new Crystal Palace at Sydenham England, is proceeding rapidly.

© 1853 SCIENTIFIC AMERICIAN, INC

Water for Washington City.

An able report on supplying the cities of Washington and Georgetown, with an unfailing supply of pure water, has been made by Lieut. Montgomery C. Meigs, of the corps of engineers, who has made the necessary surveys, and estimates. It has been published in the "National Intelligencer." The following extract from it, respecting the purifying of water, should circulate far and wide:—

"A beautiful application of a mechanical principle, used in laboratories for the sorting of chemical precipitates, into different degrees of fineness, has been suggested by J. Price Wetherill, for many years chairman of the Watering Committee of Philadelphia. In his White Lead Works, as in establishments for the pulverization and sorting of emery, a stream of water thickened with white lead, mixed with it by brisk agitation, is allowed to flow through a trough, divided by cross partitions. The stream is slow; the heavy material tends to sink to the bottom, and in passing across the first division the coarser particles descend below the level of the partition, and are retained; the next arrests those which are finer, and thus, by multiplying the partitions, the water, which entered thick and turbid, can be made to leave the trough clear and bright, retaining only those impurities which, being dissolved, no mechanical means will separate.

He proposed, I have been told, to build walls across the reservoirs of Fairmount, rising to near the water surface, and thus apply on the great scale what has so well fulfilled the same purpose on the small one. I see no difficulty in this application, and I believe that here is the best mode of purifying the water of rivers when used for cities.

The substances which discolor water are mechanically diffused. No city will supply itself from a source much contaminated by chemically dissolved impurities. The waters of the Potomac and Rock Creek, according to Professor Torrey's analysis, contain of salts soluble in pure water not more than one grain, and of carbonate of lime and magnesia, insoluble in water alone, but held in solution by excess of carbonic acid, from three to four grains to the gallon."

[With respect to the use of water for drinking purposes, a very interesting paper was recently read before the Institute of British Architects, by G. R. Burnell, C. E., on the Spanish Province of Orenese Gallicia, in which we find much that is instructive relating to the quality of water—that which is healthful and that which is not. We will endeavor to present the information, giving the author's views although not his words—for the sake of brevity.

He had noticed that, in different parts of England and Scotland, invariable softness of water was prejudicial to animal life. The Board of Health, in London, state that soft waters were the most wholesome, but this was against good authority and contrary to his observations in various countries. In Spain, in the granitic regions of Plymouth, in England, Cherbourg, in France, the millstone grit of Yorkshire, and some parts of Scotland, glandular affections were very prevalent. In Gallicia, it is notorious that no cavalry regiments can be kept, because the hay is not of a quality that is able to support the horses. The hay obtained from fields irrigated with soft water at Bagshot sands, England, was found, by the cavalry stationed at Guildford, Eng., to be unfit for their horses—it was positively injurious to them, and was finally excluded from the barracks. Some valuable plants, such as water cress, trefoil, &c., are entirely wanting in soft water regions. In the millstone grit regions of Yorkshire, Eng., horses cannot obtain the materials necessary for the secretion of the elements of their external skeleton (bones are mostly composed of the phosphate of lime). Upon human beings the effects produced by an absence of calcareous matter in the waters, are characterized by a low tone of the system. These observations are in unison with the circumstances which, in some localities, produce goitre or scrofulous enlargement of the glands of the neck. In Alpine regions, where this terrible disease is so prevalent, it is attributed to a habitual use of snow water, which is but slightly charged with mineral matter of any kind. The geology of those regions being primitive, the waters are deficient in lime, though not of other earths, such as magnesia and alumina neither of which can replace lime in the animal economy. Scrofula, in some of its many forms, will be found in all districts consisting exclusively of a primitive formation, such as the Channel Islands.

These views are well worthy of attention, but if the requisite quantity of lime cannot be obtained in water, it can be obtained from some kinds of food. The views here presented, however, embrace the idea that scrofulous diseases will always prevail in districts deficient in lime.

Pyroxylin or Gun Cotton.

It has been about five years, I think, since the distinguished German chemist, Schonbein, made known to the world his discovery, that the action of a certain combination of acids converted cotton and other ligneous fibre into a substance possessing explosive qualities of a highly interesting character. This discovery elicited much observation for several months. Numerous trials of its qualities were made in Europe and America, and among the results arrived at were, that it possessed thrice the projectile strength of gunpowder,—its combustion attended by a scarcely appreciable amount of smoke, that it may be kept any length of time without change, and that it is not permanently injured by becoming moist. These most important qualities would have secured it at once a permanent victory over all rivals, but for certain objections which were deemed so serious as to cause its total abandonment as a substititute for gunpowder. These may be summed up under the following general heads:—1st, Its expensiveness; 2nd, Its inconvenience; 3rd, Its danger; 4th, That it created a moisture on the inside of the pieces. Now I think that I can satisfy any one who who will make the necessary observations and experiments, that these objections are well nigh, if not totally, unfounded, but before I undertake to make this appear, I must give a formula for its preparation, as this is a key to the answer I have to make.

Take of dry nitrate of soda, 1 pound; commercial sulphuric acid eight fluid ounces. Mix and distil as long as the acid comes over in profitable quantity. Of this (nitroso-nitric acid) take four fluid ounces, commercial sulphuric acid two ounces, good picked cotton one ounce—mix the acids and pour them gradually upon the cotton in a wide shallow dish (I use a pudding dish), turning it over and over all the while that the atmosphere may have free access to it, otherwise it is liable to be injured or to take fire; press the cotton together that the acid may penetrate the whole mass, then (as soon as convenient) press out as much of the acid as possible and put it away to be returned to the retort for another distillation; let it remain in this condition for several hours, then wash it thoroughly in cold water until no acid can be detected by the taste. (After this I usually wash in a solution of sal soda and again in cold water). Express all the water from it that can be done, and subject it at once to carding with coarse cards, which will facilitate its drying greatly. Expose it to a current of air to dry, after which have it well carded and made into rolls. As a last step, manufacture it into a loonely doubled and twisted cord of a size to suit the calibre of the price for which it is intended; clip into suitable lengths for cartridge, and it is ready to be used as such without further preparation. It will now be found to weigh one and a half ounces. It is thus more cheaply made into cartridge than gunpowder, and in this state is as convenient as it or any other substitute. Its bulk is so much reduced that fifty charges for a fowling piece may be carried in the vest pocket.

It is not more liable than gunpowder to burst the gun, and I have satisfied myself completely that it does not heat the piece appreciably. It has been long known that it does not soil the gun, nor will it explode except by a spark or a temperature above 212° Fahr.

As to the charge that it produces a moisture by its explosion, I have only to say that I have endeavored by frequent and rapid firing to ascertain the fact, but have not done so except in an early experiment with an indifferent article, in a screw-barrel pistol, in which the ball was not driven out. Finally as to cost,—I recollect that when this discovery was first promulgated, that some distinguished authority asserted that it could be produced at a cost of fifty cents per pound. This estimate was, however, thought to be greatly too low, both by those who undertook to prepare it, and especially by those who purchased it. Now, however, I feel well assured that it will be sold (as soon as it comes into general use) for considerably less than this. In fact this cost is scarcely exceeded in that manufactured in my office, where I have nothing but an apothecary's pestle, with which to express the acids, and where, consequently, two-thirds of it are washed and thrown away. I have not, as yet, prepared but a single ounce at one operation, but have no doubt that a pound may be prepared at a time with nearly as great facility, the only precautions necessary being to pour on the acids gradually in a large cool vessel, and to keep the mass turning over all the while.

Marston's breech-loading fire-arms appear to be admirably adapted to the use of this article. J. V. H.

[For the Scientific American.]

Reciprocating Gas Metres.

The result of all mechanical experiments should be to add something to the science of demonstrative mechanics—whether an experiment is successful or otherwise, the result is in either case of like importance to that class of thinking, investigating inventors, who often risk the bread of their mouths on the result of an experiment, which only can be definitely determined by a practical demonstration—which in many cases has been done by some one, who, if they had written out the result for some paper, showing the philosophical principles involved, would contribute much valuable aid to inventors, who would know that through the medium of your useful paper they would find much valuable information.

I find a patent has been granted to E. R. Hallam, for a reciprocating gas metre, what its particular advantages are does not appear from the claim. I have experimented on this kind of metre as many others have, and found the result to be unsatisfactory, which, if the result had been written out and published by the first experimenter, showing the reason of its first failure, much time and money would have been saved to future inventors, who paid for "turning the stone," and found nothing. The general arrangements of metres of this kind are very much alike—a piston with induction and eduction valves. I found that with gas passing through the metre and pipes, about one-third the capacity of the pipes for discharge, a steady light could be obtained, as the small expansive force of the gas and instantaneous movement of the valves keeps up the equilibrium of pressure, but when more than this quantity was passed, the lights were more unsteady, as the number of burners was increased; the apparent reason was, that the increased quantity discharged caused increased velocity in the pipes, giving to the gas a momentum that destroys its small expansive force, and makes a partial vacuity near to the eduction side of the metre, when the momentum of the gas on this side of the metre recoils to fill the space, making the lights faint. On the induction side of the metre, the shifting of the valve stops the current of gas for a small conceivable point of time, but sufficient to make an accumulation of force, similar to the hydraulic ram, which, when the valve opens, causes the lights to puff up higher than the ordinary pressure would make them—when a long induction pipe is used the trouble is increased.

Now this is a difficulty to which all reciprocating metres are subject—the present rotary drum metre is the only practical plan.

D. H.

New Haven, March 1853.

The "Indianola Bulletin," in speaking of the mineral products of Texas, says:—The white marble extending from Austin to San Antonio along the mountain slope, is inexhaustible—indeed there are whole mountains of it, of the most beautiful kind, which is quarried, then sawed as wood into any desirable shape, and planed off to a perfect polish. It is quite a soft rock when taken out, but hardens immediately by exposure to the air.

Recent Foreign Inventions.

Artificial Manure.—Richard A. Broomen, and J. C. Robertson, of the "London Mechanics' Magazine," patentees.—The invention consists in producing manure in a state of powder by the desiccation and pulverization of fish, or the remains of fish, which makes, it is stated, as rich a manure as the best Peruvian guano.

Fish are taken and reduced to small pieces, after which they are boiled in a common boiler, or steamed in vessels with double sides. After this they are deposited on strainers to drain, and then grated in large grates. After they are placed in bags, or between cloths, and pressed, in order to extract as much liquid as possible. The cakes as they come from the press are then subjected to currents of hot air, by which they are completely dried, when they are reduced to powder by machinery, and are then fit for manure. This substance may ferment when stored away—which action may be prevented by sprinkling the powder with chloride of manganese. In some places on our coast, where certain kinds of fish come up at particular seasons of the year in great shoals, this kind of guano might be manufactured at a considerable profit, as the said fish are never preserved for market.

Sewage Manure.

At the weekly meeting of the Farmers' Club of this city, Robert L. Ells, Esq., of Pelham, Ulster Co., called attention to a subject of importance—the great loss, in this city, of the nitrogen contained in the excreta of over 600 000 population. The amount from each would be sufficient for 800 lbs. of wheat—more than is necessary for an acre of land, with the aid of that which it would obtain from the atmosphere in combination with ammonia, phosphates and sulphates. Our city might afford nitrogen enough every year, to raise, at least, 180 million pounds of wheat. Add a small quantity of ashes and bone dust, and we could do away with the bulky excrements of cattle, which are not worth what it costs to transport them any great distance. The writer said he had paid $1,50 per load for such manure, and transported it six miles to his farm. He put forty loads on an acre, which cost him $80. By removing the liquid from the ordure, and using the nitrogen only, sixteen pounds, worth fifty cents, would be of equal benefit, and $80 worth of this latter would enrich 160 acres. The solid and liquid manuring substances produced in the factories of various kinds in this city, with the sewage water of the city, is equal to one tun for each inhabitant, or 600,000 tons per annum. Nearly all of this finds its way to the East or North River, and is selected by fish for their food. London contains two millions of people, and loses two million tons of excrement yearly, it being emptied into the Thames River, which supplies two thirds of the city with water. In addition to the 600,000 tons of street dirt, ashes, &c., which might be carted to depots at a cost of $260,000 per annum, thus saving 1,200,000 tons of valuable fertilizing matter, worth at least $600,000. He suggested the erection of reservoirs, with buildings over them, at the termination of the sewers, for the purpose of collecting the rising gases, and crystalizing them by chemical process for agricultural purposes. Steam engines could be used to elevate the solid matter into boats for removal to neighboring farms. The construction of sewers, which would be the principal expense in this arrangement, has already been done to a great extent. The same plan could be adopted in the various cities and villages up the Hudson.

A decree of the French Government permits the importation of soap manufactured of palm oil, olive, tallow, or resin, at 8 francs duty per 100 kilogrammes, with full drawback for exportation.

The "Chicago "Democrat" says that disclosures of the recent State survey of Illinois make it certain that the coal fields of that State are equal in extent to those of Pennsylvania, if not greater.

© 1853 SCIENTIFIC AMERICIAN, INC

NEW INVENTIONS.

Improved Tide Mill.

Measures to secure a patent for the above have been taken by John Smith, of Parmelia, N. Y. The apparatus which forms the subject of this invention differs from the ordinary tide mills, in being altogether independent of any return or current. It may be employed in any tidal water, and is particularly well adapted for use in harbors and docks, for the purpose of driving hoisting machinery for loading and unloading ships. It consists of a vessel or float of adequate buoyancy, which is confined by any suitable means so that it can only move vertically. It carries a vertical toothed rack gearing with a pinion, so placed as to be capable of giving motion to the machinery, which the power is to drive, or is furnished with other suitable means of transmitting the same as it rises and falls with the tide. In order to obtain the same amount of power at the above different changes, it is necessary that the weight of the float should be sufficient to produce the required power, and that it should be sufficiently buoyant to bear at least an equal amount of additional weight, these two desiderata being regulated by the admission of a certain quantity of water to the interior of the vessel.

Safety Cross Bar.

A cross-bar of an improved description for safes or bank vaults, doors, &c., has been invented by F. C. Goffin, of New York City, who has taken measures to secure a patent. In this improvement the cross bar is hinged in the middle, one half being fixed and the other movable, and fits when closed either into a groove or flanches, so arranged that its outer surface shall be flush with the door. The object of this is to prevent the possibility of its being forced by any instrument, to which this kind of security, as at present employed, is very liable, and as an additional safe-guard the cross-bar is bolted on the inside, by means of a lock fitted to the door, which is operated from the outside. The ordinary cross-bar is merely placed against the outer surface of the doors, and is secured by a padlock, which, as well as the cross-bar may be easily forced or wrenched off by a lever. But by this arrangement there is no way that the cross-bar can be drawn back, and as it is so placed as to cover the key-hole of the safe lock, the latter cannot be exposed otherwise than by picking the lock of the cross-bar.

Cloth Drying Apparatus.

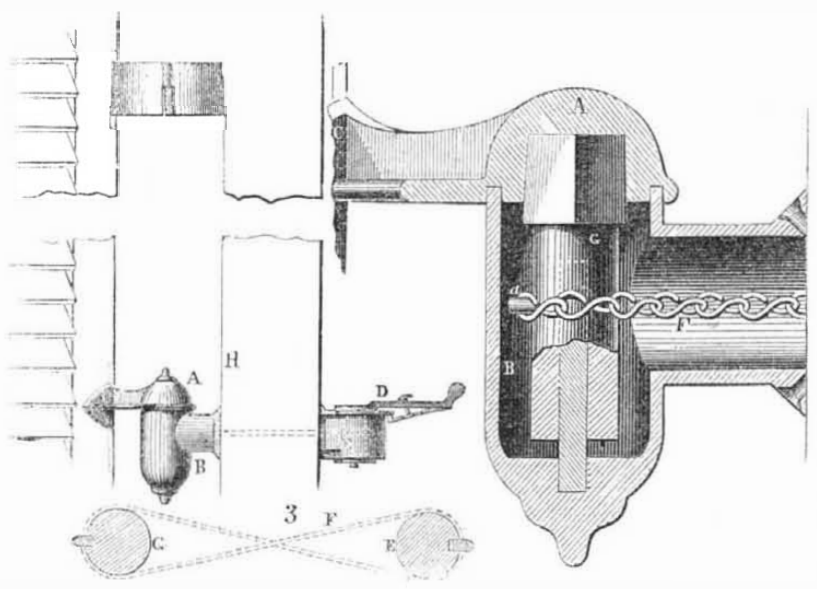
At different stages in the manufacture of woolen cloth the piece requires to be dried, and this is commonly done by stretching it on tenter frames, which are placed in the open air. An improvement on the above, by which the process of drying can be carried on much more rapidly as well as inside the factory, has been invented by Robert Preston, of North Pownal, Vt, who has taken measures to secure a patent. The apparatus consists of a large iron box supported by standards having furnaces underneath, the heat from which before its escape, is conducted about by means of flues extending along the back and sides of the chamber or box. Inside this are arranged series of rollers which carry the cloth back and forth until it is sufficiently dried, but previous to this operation the fabric is submitted to the action of a nap-laying card, and after having made the circuit of the whole series of rollers, it is carried over a cylinder brush for the purpose of smoothing it. The rollers are worked by a shaft and pulleys, which are properly arranged to transmit the required motion by means of belts, and the whole is operated by any suitable power.

Improved Corn Drill.

Measures to secure a patent for the above have been taken by John Thompson, of Oquawka, Ill. The distinguishing peculiarities of this drill consist in the manner of regulating the depth of the furrow and the pressure of the roller, also in the plan adopted for distributing the seed. The latter machinery derives its motion from one of the wheels which, unlike its fellow, is not attached permanently to the axle, but merely partakes of its motion through the intervention of a clutch which is forced up to it by a spring, so that when the person in charge pulls back the clutch, the delivery of the seed is suspended. A boss fixed on the axle rotates with it and fits snugly in the lower part of the hopper, so that the seed cannot escape except by two opposite recesses in the periphery of the boss; these, as they become filled, pass on, whilst the seed cannot fall from the recess until directly over the furrow, being retained by an apron over the boss. The share placed in front of the hopper can be easily set for any required furrow, and the two covering shares are placed obliquely, so that they collect the earth. The operation is completed by a roller, which is regulated in a manner rather similar to the share.

IMPROVED BLIND AND SHUTTER OPERATOR.

Figure 1. Figure 2.



The accompanying engravings represent a valuable improvement in the manner of operating window shutters by which the inconvenience of the modes at present adopted are completely obviated. In these views similar letters refer to corresponding parts.

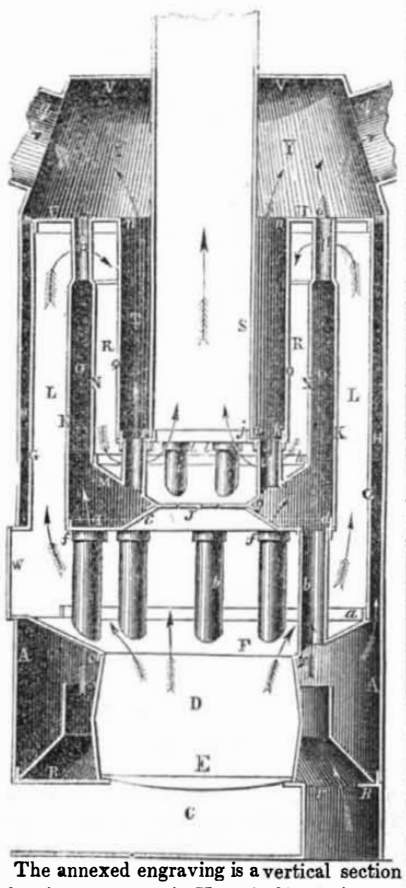
Fig. 1 is a side elevation, and shows the mode of affixing the contrivance to both the inside and outside of the window frame and wall, as well as the manner in which the shutter is suspended. For this purpose a novel construction is introduced in the shape of the lower hinge (the upper hinge being made somewhat of the ordinary form), it consists of a neat metal box, B, in which is placed a square headed pin.

A is the cap, which works freely as a hinge on the box, B, and is secured to the shutter at C; H is the window frame, attached to which, inside the room, is the arrangement for operating the contrivance. This latter consists of a pin, E, placed inside a metal box, having on the top a handle, D, to which the pin is secured.

Fig. 2 is a sectional view of the box, B, and its contents, G, is the square-headed pin aleaded alluded to in fig. 1, to which the chain, F, is fastened at *a*, the form of the chain and the manner in which it is placed being more minutely illustrated in fig. 3, where the chain, F, is shown attached to the pins E and G. By this arrangement, as here represented, all that is required for opening or closing the shutter, is to turn the handle, D, in an appropriate direction, which will accordingly move the pin, E, and with it by means of the chain, F, the outside pin, G, whose rotation, as will be clearly seen, causes a corresponding movement of the cap, A, and of the shutter to which it is attached. The distance of opening or closing the shutter can be regulated at will by causing the handle, D, to describe a greater or less arc of a circle, and the shutter is kept fast at the required distance by a small catch beneath the handle; there is also an additional fastening for securing both shutters when closed; it is needless to observe that the arrangement for each shutter is independent of the other. Patented Nov. 16, 1852.

For further particulars application to be made by letter or otherwise to R. V. Jones or P. W. Seibert, Chambersburg, Pa.

Air-Heating Stoves.



The annexed engraving is a vertical section of an improvement in Hot Air Stoves, invented by J. M. Thatcher, formerly of Lansingburg, Rensselaer Co., N. Y., who secured a patent for it on the 23rd of March, last year.

A is the outer casing of the stove, which consists of a cylinder of sheet metal, set upon a cast-iron base plate, B, below, which forms the ash pit, C. The fire-box, D, rests upon the base plate. E is the grate; F is an inverted circular dome of cast-iron having an opening through its centre surrounded by a rim, *e* which fits to the top of the fire-box, and having also another rim, *a*, which stands up from its outer edge; it has a number of small tubes, *b*, standing up from it, ranging in a circle around the fire-box. G is a short iron cylinder fitting close over the rim, *a*, and being supported by the dome, F, the space between it and the outer casing, A, forming an annular passage, H, it reaches to the same height as A. I is an inverted dome of cast-iron; it has an opening through its centre, surrounded by a rim, C, which extends upwards in the form of a slightly conical tube, and has another rim, *d*, extending upwards around its outer edge; it has a series of short tubes, *f f*, extending downwards from it, which fit over the tubes, *b b*, of the dome, F, and form passages through both domes, tubes, *b b*, supporting the upper dome. J is a damper; K is a sheet iron cylinder fitting over the rim, *d*, the space between it and G forms an annular passage, L. M is an inverted dome, similar to F; it has an opening in its centre surrounded by a rim, *g*, which fits over the short wide pipe, *c*. A series of tubes, *i i*, are ranged in a circle, passing through the rim, *h*. N is a sheet-iron cylinder fitting over rim *h*, and is supported by dome M. There is an annular space, O, between it and the cylinder, K. P is a circular plate of cast-iron, with an opening through its centre surrounded by rim, *j*, forming the chimney seat; it has a rim, *k*, extending upwards around its outer edge, and has a number of short tubes, *l l*, above *i i*, extending upwards, forming passages through the dome; Q is a short iron cylinder fitting and resting on the plate, P, and running up to the same height as cylinders A & G, the space between it and N forms an annular passage, R. S is the chimney; T is an annular space; V is a cast-iron plate, it fits down close to the cylinders, A, G, and Q, and has openings, *m m*, communicating with H; one, *n*, which communicates with T, and a series, *o o*, which communicate by a series of tubes, *p p*, with the space, O, the top of said space being covered and closed by a ring of metal, so as to close all outlets except through the tubes, *o o*. V is the cover of the stove, which fits to the outer casing, A, or to the plate, U. Y is a distributing chamber for the heated air; *q q* are passages for distributing the air. B is a plate surrounding the foot of the fire-box, D, and through which the air is admitted to be heated, as shown by the arrows at *r*. E is the grate; C the ash pit. When the damper, J, is closed the draught of the fire plays between the tubes, *b b*, ascends the annular flue, L, and then passes between the tubes, *p p*, descends the annular flue, R and after passing between the tubes, *i i*, ascends to the chimney, S, its course being indicated by arrows. The air to be heated passes through openings, *r*, in the base plate, then rises up into the inverted dome, F, where it spreads, and part of it ascends the passage, H, passes through the openings, *m m*, to the chamber, Y, while a part ascends the tubes, *b b*, *f f*, to the space between the inverted domes, I and M, where it is again divided, part of it passing up the passage, O, through tubes, *o o*, to the distributing chamber, Y; the remainder passes through the tubes, *i i*, and passage, T, to the said chamber, and then through the passages, *q q*. During the ascent of the air it is thus brought into contact with an immense amount of heating surface. The arrangement of cylinders described may be increased in number by the same mode of connection. As the heat is more intense near the centre of the stove, stronger currents of air are made to pass through the central passages. This is accomplished by making the sum of the areas of tubes, *b b*, *f f*, greater than the openings of *m m*, at the top of passage H, and the sum of the areas of passages, O T, greater than that of H; this principle is shown by the relative size of the passages and tubes, near to and at a distance from the fire-box and smoke-pipe.

The great and grand object of all stoves or furnaces for heating air to distribute through buildings—to keep the same at an agreeable temperature and in a healthy state is to have a large amount of heating surface and a low heat. If possible, the hot surfaces should never be above 100 Fah. Air passing over very hot iron plates—to use a common phrase, the meaning of which is well understood—is burned, and in that state is not fit for human beings to breathe. In many churches and public buildings the hot air furnaces employed, are too small, hence intensely heated air deprived of part of its oxygen is thrown through the building, the effects of which are deeply injurious.

More information may be obtained by letter addressed to Mr. Thatcher, who is now residing in Jersey City, N. J.

Corn and Seed Planter.

Dr. S. Keller, of Elizabethtown, Pa., has taken measures to secure a patent for improvements in the above. The planter can be regulated to drop a single grain, or in hills at any desired distance apart, and is so arranged that pumpkin seed can be sown alternately with the corn, or if required it can be regulated to plant peas or beans of any desired thickness. The improvement is attached to a common shovel harrow, and can be taken off in a minute.

C. A. Roney, Secretary of the Dublin Industrial Exhibition, has been appointed general superintendant of the St. Lawrence and Atlantic Railroad.

© 1853 SCIENTIFIC AMERICIAN, INC

Scientific American

NEW-YORK, MARCH 19, 1853.

To Inventors---"Honor to whom Honor is Due."

Many valuable discoveries and improvements have been made by which great benefits have been conferred upon society, the names of the authors of which are unknown, or the honors which they justly deserved have been conferred upon others. The successful commander in battle is generally awarded all the honors, although his success may have been due to some daring and skillful feat of a subordinate officer, like Kellerman's charge at Marengo. The hero worship is centred in the word *success*; but as Mr. Fairbairn said in claiming his share of the invention of the Britannia Tubular Bridge, "honor to whom honor is due, but not *all* to the first engineer." Many men have invented good improvements, but from the poverty and the obscurity of their position, have not been able to introduce them into public notice, or bring them into public use; this was especially true in the days when no public press was employed to spread abroad light and knowledge. At present (and perhaps it will be so in every age,) there are many useful improvements invented, the authors of which are not able to bring their inventions into use but the honor of their discoveries is safe, as has been, that of inventors for many years past. Uninformed literati often do great injustice to original inventors, by attributing their discoveries to mere copyists, who, under favorable circumstances, subsequently had brought their inventions into more prominent notice. As the advocate of inventors' rights, we have oftentimes to correct public reports respecting the authors of inventions, in order to do justice to every inventor according to the extent of his improvement—the real value of what he has invented. Thus, for example, it has been stated, that a new mode of ship-building has been invented in England, by which "*the* timbers are dispensed with, and the whole vessel built of plank." It is also stated that the Peninsular and Oriental Company has launched a new steamship at Cowes, which is made with "two thicknesses of diagonal planking, and a longitudinal planking outside, constituting the whole thickness of the sides." A notice of this system was published in the "New York Daily Times" of the 10th inst., the editor of which remarks upon it, "if the mode is practicable, it must be a great improvement." It cannot reasonably be expected, that any person can be posted up in the history of inventions unless he has long devoted himself to the study, and at the same time has had practical experience in his profession. This system of shipbuilding is not new. A steamboat on this plan was built by R. V. De Witt, Esq. of Albany, N. Y., and ran for some years on Senaca Lake, this State, and a United States schooner named the Experiment, on the same plan, was built in 1841 or '42. A book containing plates illustrative of the whole system was published by J. L. Sullivan, of Troy, N. Y., in 1823, and was termed "Annesley's System of Shipbuildinng."

The Inventors of Propellers.

On the 24th of last January, Mr. Raymond, editor of the "New York Times," delivered a lecture on the "Hot Air Engine," and in the course of his remarks he stated that Capt. Ericsson was the inventor of the propeller, and told a curious story about his first propeller boat. and a Commission of the British Admiralty. Mr. Raymond obtained his extraordinary information from a lecture delivered before the Boston Lyceum in Dec. 1843, by John O. Sargent. In the "N. Y. Times," of the 24th of Feb. last, the statement is repeated with the following endorsement:—"Now no English Government steamer of any kind is furnished with any other propulsive mechanism," (Ericsson's propeller). We assert that Ericsson is not the inventor of propellers for steamships, and that his propeller is not in use in England at all. The first inventor of the screw propeller in America, was Col. John Stevens, of Hoboken, the father of Robert L. Stevens, of this city. A person named Shorter took out a patent for propelling vessels by a screw, in 1800, which screw was adapted to the motion of the vessel by a universal joint. The renowned Trevethick proposed the Archimedian screw for boats in 1815, and in 1816 a Mr. Milligan secured a patent for a propeller, consisting of two vanes like those of a smoke jack placed beyond the rudder, and working with a universal joint. In 1825 Jacob Perkins, of Massachusetts, after he took up his residence in England, patented a plan for propelling vessels, which consisted of two vanes working in opposite directions and placed at the side of the rudder. Woodcroft, whose screw of an increasing pitch, as modified, is now in general use in the English navy, and on all the propellers in Britain, obtained his patent in 1832, and Smith for his modification of the Archimedian propeller obtained his patent in 1836. Captain Ericsson obtained the patent for his propeller in 1837; it differed from that of Perkin's in being submerged and placed behind the rudder. In conjunction with his propeller Capt. Ericsson patented the hollow hull, and a mode of disengaging his propeller, when required, which has been highly spoken of, but his propeller is of such questionable utility that the one with which the Princeton was fitted, was removed by Commodore Stockton, and replaced with another of a different character, by which that war steamer was enabled to sail much faster. This is stated in the excellent work of Chief Engineer Stuart, on our "Naval Steamers." Every one of the Atlantic propeller ships, the only really well tried and successful ships of the kind, with which we are acquainted, are fitted with section screw blades of an increasing pitch, and not the Ericsson propeller.

Various patents were taken out in the United States, prior to Capt. Ericsson's invention, such as J. Weddefield's, of Philadelphia, in 1815: H. Wheatley's, of New York, for segments of a spiral in 1818; J. J. Guinand's, of Baltimore, for screw, in 1831, and J. Smith's, of Charleston, S. C., in 1835, and J. B. Emerson's, in 1834; this latter inventor instituted suits against those who employed the Ericsson propeller as being an infringement of his patent, but we suppose his claims were too broad also. The great danger of lecturers, like biographers, is to make heroes of their subjects, and this (let charity say unwittingly) often at the expense of truth. It does no injustice to state what an inventor has done, and to praise its real worth, but when the claims of one inventor are taken from him and given to another, truth, honor, and honesty cry out against the evil. We could say a great deal more on this subject, but we forbear to do so at present.

The Blast in Locomotives.

In the same lecture referred to, delivered by Mr. Raymond, he asserted that Capt. Ericsson was the inventor of the *blast* in locomotives, and that at the opening of the Liverpool and Manchester railway, he employed it on his trial locomotive. This is not correct; the "Novelty," the locomotive of Braithwaite and Ericsson, employed a *blower*, and not the *blast*, on her trial. Let any person examine page 608, "Hebert's History of the Steam Engine, and he will see for himself that the "Novelty," had a *blower*, nothing more and nothing less. It was a beautiful locomotive, and much favor was shown to it but it failed entirely to compete with the Rocket, and there was nothing in it as a principal feature that is now employed on locomotives Timothy Hackworth is the inventor of the blast on locomotives; he employed it on the Sanspareil, which was the only locomotive that had it at the trial on the Liverpool and Manchester Railroad. The *blast* is also claimed for M. Pelletan, a French engineer, who no doubt invented it without any knowledge of Hackworth's application, but at a subsequent period. We have been thus particular on a subject which concerns the honor of inventors in general, because we deem it our duty, to allow of no injustice to any one of them, either through ignorance or malice, to pass unnoticed. We can furnish indubitable proofs to confirm the truth of all we have uttered. It is our opinion that the editor of the "New York Times" had no intention in making the statements referred to above, of doing injustice to those inventors over whom he placed the claims of Capt. Ericsson; what he stated, we believe, was uttered under the impression of its truthfulness. Correct and full information on such subjects is not so easily obtained but on that very account editors should be exceedingly careful of what they say upon such subjects, in order that they may always award "honor to whom honor is due."

Steam Boiler Telegraph Alarm Gauge.

A very ingenious gauge for steam boilers, the character of which is indicated by the above caption, has been in operation for some time at the Fulton Works of Messrs. Pease & Murphy, cor. of Cherry and Corlears street, this city. The alarm consists of an electro-magnet which can be placed in any place however distant from the steam boiler, and which will ring a bell whenever the water in the boiler falls below a certain line, also when the pressure of steam rises above a certain standard. The magnet which rings the bell is connected by wires to a battery and a column of mercury in a tube placed in the boiler is employed to break and close the galvanic circuit. When the circuit is broken the bell is silent, but when the pressure of the steam forces the mercury in the tube to close the circuit of the separated wires, the electro magnet at once operates a spring hammer that strikes upon a bell as long as the circuit remains closed. The alarm can be placed in the cabin of a steamboat, captain's room or any place desired. The one at the Works mentioned is placed in the office, at a considerable distance from the boiler. The invention is a very beautiful one, and while it has everything to recommend it, we are not aware of any objection that can be urged against it.—We have seen the apparatus in operation, and any explanation required was kindly rendered by Mr. Murphy. The apparatus, we believe, can be kept in order at but little cost, the renewal of the battery being all the running expense required, and this cannot be much.

Events of the Week.

Propelling Devices—"The Queen of the South," a large steamship belonging to the "General Screw Steam Company" (England), broke the fan of her screw on one of her recent voyages, and Mr. Field, of the firm of Maudsley & Field, of London—able engineers—who was consulted respecting the new screw, put in one with a decreasing width of fan or blade, and an increase of four feet pitch. The new screw was reduced 1600 lbs., and yet the ship ran with the same speed making ten revolutions less per minute. With the new screw she made 10½ miles per hour, with the old one only 9 knots.

Feathering Paddle Wheels—The steamship "Parana," (which was to have been the "Arabia," but was sold to the West India Mail Co., after the "Amazon" was burned), was fitted with "Morgan's Feathering Paddle Wheels," and it was supposed that she would surpass all the steamships in the world in point of speed; she made two very fast passages, but the "London Artizan" states that the feathering wheels have been taken out of her, and the old common kind put in, and that she goes much better. Two other steamships, the "Orinoco" and "Madalena," which were fitted with feathering wheels also, are about to be altered in the same way.

The New York and Erie Raiload—The "American Railroad Journal" handles the directors of this railroad with great severity, asserting that $6,722,260 have been spent for which no account has been rendered. It says that "as much money has been spent and not accounted for, as was first estimated for the original cost of the whole road." It insinuates something about a *secret service fund.* We do not know what can be the meaning of it, although from the statements published, it appears that the said company has managed its affairs in a most extraordinary manner. We hope the Directors will be able to make all things clear and explicit.

To Prevent Candles Guttering—A scientific correspondent informs us that by using the frustrum of a cone of wire gauze or perforated metal on the shoulder of a candle, it will keep the candle from flickering and the grease from guttering. This is certainly a good device for such a purpose.

Burning Fluid and Camphene—A Boston correspondent requests us to explain the difference—for the benefit of many—between camphene and the spirit gas (explosive fluid) sold in our stores, as many people suppose camphene to be explosive, and do not know the difference between it and the spirit gas. Camphene is highly rectified spirits of turpentine, contains no alcohol, and is not explosive. It will not burn in a common lamp without a chimney, as it contains C.10, H.8—a very large portion of carbon, and emits much smoke, which is only prevented by using a long chimney to supply a great quantity of oxygen to support combustion.

The spirit gas is a mixture of rectified camphene, with about five or six times its quantity, by measure, of alcohol. They are mixed together in a cold state. It is the volatile nature of the alcohol which is the cause of danger.

Square Cylinders—We have seen extracts in various papers telling how an engineer in Paris had constructed a steam engine with a "square cylinder," and consequently with a square piston. We confess to a knowledge of what a "square box" is, but a "square cylinder" is something really new—we do not know what it is. The idea of a square piston working in a rectangular box is really worthy of the enlightenment of the year one instead of the nineteenth century.

One great advantage of the reciprocating over the rotary engine, is the form of piston and cylinder. The round disc working in the round cylinder are the best known forms for working smoothly, uniformly, and for rendering the piston easily packed to work steam-tight.

English Patent Laws—A Bill is now before Parliament to amend several clauses of the late Patent Law Amendment Act: it provides for the payment of stamp duties for fees on letters patent. This will expedite the business of procuring a patent. Proper stamps are to be provided for the purpose by the Inland Revenue Commissioners. We will apprize our readers of the nature and provisions of the Bill when it passes, if it does pass.

A New Green Dye—The Chinese employ a substance of a vegetable origin, which contains no indigo and which dyes cotton fabrics, prepared with a mordaunt of alum, a beautiful green. M. Peroz, of Paris, has recently obtained some of this substance, and has made some successful experiments with it. We possesss no such dye in America, but Bancroft mentions that such a substance, has been long known in Africa.

Price of Machines.

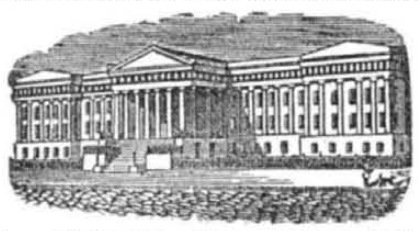
We have received from time to time, a number of letters to urge upon inventors the necessity and importance of stating the price of their machines, when illustrated and described in our columns. In many cases this no doubt, could be done, but at the same time we believe, that when we give the residence of the inventor, and state that "*more* information can be obtained by letter," the best means are presented for those desirous of purchasing said machines, or of purchasing patent rights, to obtain minute information respecting the same. Thus, for example, a patent right for one city is more valuable than for another, and also for one State more than another.

The Convicted Aldermen.

Our New York Civic Fathers, have been taught a lesson which we hope will serve as a memento to future Aldermen. Sturtevant has been sentenced to 15 days' imprisonment, and fined $250, the others are fined $250 and $102 costs and expenses. We congratulate our readers that such has been the case, namely, that the law has been triumphant, and that villany, although sitting in high places, is yet amenable to the decrees of justice. They have been found guilty of contempt of court, and punished accordingly. *Fiat justitia ruat cœlum.*

Many of the Baltimore Mechanics are still on the strike for higher wages. Some of the shops will not give the wages asked, and it is stated that numbers of the men are not able to stand out much longer.

© 1853 SCIENTIFIC AMERICIAN, INC



Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING MARCH 8, 1853

PRINTING PRESSES—By Seth Adams, of Boston, Mass.: I claim, first, the combination of the vibrating platen with the sheet holders, arranged as specified, so as to be kept up a little distance from the platen when in position to receive the sheet, and moving with said platen to the form, in order to hold the sheets thereon and draw them from the types. also with the gauges for registering the sheets.

Second, the mode for keeping the sheet holders up from the platen when the sheet is to be placed. Said means consisting of an arm on each end of the rod (on which said holders are fixed and with which they turn), and stops, against which said arms strike the arrangements and operation, being substantially as set forth.

Third, the apparatus for delivering or taking off the sheets from the platen after it is printed, consisting of the moving or sliding tympan cloth, in combination with the turning segment, to which an intermittent and reciprocating rotary motion is imparted by the catch, ratchet, and spiral spring, operating as specified.

CANE JUICE EVAPORATORS—By Henry Bessemer, of Baxter House, England. Patented in England, Feb. 24, 1852: I claim the combination of a hollow and perforated shaft, connected with an air blast apparatus, a series of plates, or a screw plate (placed around and on the shaft) and a reservoir, trough or basin, for holding the liquor to be evaporated.

Also, the combination of a hot water vessel and its heating apparatus, the cistern for holding the saccharine liquor and the apparatus for effecting its evaporation by means of hot air blown on thin or extended surfaces, a screw or plates, as specified

FILTERS FOR CANE JUICE—By Henry Bessemer, of Baxter House, England. Patented in England, Feb. 24, 1852: I claim the combination of the receiving vessel, rotating filtering drum (placed within the said vessel), gutters (within the drum), the hollow axle or shaft (connected with said gutters), and the scraper applied to the outer surface of the revolving drum, the whole being arranged and made to operate together, substantially as specified.

BREAKING AND DRESSING FLAX—By S. A. Clemans, of Springfield, Mass.: I do not claim simply the double action of beaters, as that is well known in a great variety of machines for various purposes.

What I claim is the method of breaking and dressing flax or other fibrous substances, by a beater constructed in the manner described (vibrating on a central axis), between the faces of which the flax, &c., passes as described, when this is combined with one or two pairs of rests placed in close proximity to the edges of the beaters between which the flax passes, as specified

Also, in combination with the beater and rests for breaking and dressing, as described, the employment of a pair of rollers each of which is grooved in the direction of its periphery, and one of which is made to vibrate in the direction of its axis, for the purpose of opening and softening the fibres, as described.

MAGNETIC MACHINE FOR WASHING AND SEPARATING GOLD—By Samuel Gardiner, of New York City: I do not claim to have invented a rotary cylinder of magnets, for the purpose of separating magnetic particles from ores or metals; but I claim separating gold or other metal from earthy and magnetic particles, by means of a rotary cylinder of magnets, which magnets, at the same time as they collect the magnetic particles, serve as agitators for agitating the water and the metal and earthy and other foreign matter which is mixed, for the purpose of washing away the said earthy and other foreign matter, the said cylinder of magnets being constructed and arranged in relation to the trough, containing aforesaid mixture in any way, substantially as set forth.

(See engravings in No. 50, Vol. 7, Sci. Am.)

DAGUERREOTYPE CASES—By J. F. Mascher, of Philadelphia, Pa: I do not claim the invention of a Sterescope, for that has been previously discovered; but I claim constructing a daguerreotye case with an adjustable flap or supplementary lid, said flap or lid being within the case and having two ordinary lenses placed in it; by which, upon adjusting the flap or lid, a sterescope is formed of the case and the two daguerreotypes, by binocular vision are apparently formed into a life-like figure.

(This is a very excellent improvement. well worthy the attention of daguerrean artists).

MOULDING IN FLASKS—By L. A. Orcutt, of Albany, N. Y.: I claim, in combination with a flask having a continuous or reciprocating rotary motion, the rammer or rammers, so arranged as to be made, at any time during their operation, to work in any portion of the flask, whilst, at the same time, they have an automatic adjustment, so as to rise as the flask is filled and rammed, and adjust themselves vertically in regard to the flask, the whole being accomplished as described.

MOULDING FOR CAST-IRON PLATES—By Thaddeus A. Smith, of Albany, N. Y.: I claim the process of moulding the recesses in the tops of stove plates intended for the reception of the lifters by which such plates are handled (which recesses are required to be dovetailed) by employing pattern cups, shaped to form such recesses, divided by a vertical cut into two parts, so that the said cups can be removed from the core formed by them, by moving each division of it horizontally from the core before raising it off the sand, and by fitting the cup pattern into the pattern of the stove plate so that the plate pattern can be lifted from the sand, leaving the cup behind it, as set forth.

MACHINES FOR DRESSING SHINGLES—By Joel Tiffany, of Cleveland, Ohio: I claim the combination of parts consisting of the pinions, with the intermediate gears The levers and joint levers and sections, with the connecting rods, and cam, for the purpose of operating the arms, as described, turning and removing shingles, at the same time, from one side of a reciprocating bed, to the other, and then, when its second face is dressed, throwing it from the machine in a finished state

CANNON SIGHT—By John A. Wagener, of Charleston, S. C.: I claim the sighting apparatus, consisting of the corresponding pendula, as described, hung between the graduated side pieces or uprights, in connection with the protecting and regulating slide, with its rifle sights, said pendula having free sway, by means of the rotary mounting of the uprights and upper part of the apparatus on the screws and pivots, and the whole being attached and shifted into horizontal position on the cannon by means of the movable spring clasps, all constructed and combined as set forth

RE ISSUE.

SPLINTS FOR FRACTURES—By Adam Hays, of Pittsburgh, Pa. Patented Aug. 13, 1850: I claim the cutting out a portion of the splint, to afford an opportunity for dressing as often as may be necessary, the upper and lower portions of the splint being kept firmly united by means of the brace, so as, by extension and counter extension, to keep throughout the treatment the proper relative position of the parts concerned, the slide being replaced after each dressing, or any other device substantially the same.

The Magnetic Telegraph Suit.

The suit of Professor Morse, the inventor and patentee of the magnetic telegraph, against Henry O'Reilly for an invasion of the patent rights of Morse, was before the Supreme Court, at Washington, a few days ago, but the decision has been postponed till the next meeting of the Supreme Court, one year from the present time. Some of the New York papers a few days ago said the decision of the Court had been against Morse. With a view of getting correct information upon the subject, to lay before the public, the "Philadelphia Ledger" applied to an accurate source to learn the facts in the case, to which application they received an answer, showing the mistake of the New York journals:—

WASHINGTON, Feb. 5, 1853.

MESSRS. EDITORS.—I presume you have received, through the newspapers, the information requested in your message of the 1st inst.

The idea that the Supreme Court had decided against Morse's Patent, seems to have arisen from a misconception of their decision in another patent case. In that case they decided, as all courts have done before, that a principle cannot be patented. Nobody claims that an absolute principle, art, or result is patentable; that is to say, you cannot assert that you can do a particular thing never done before, and thereupon obtain a patent for it, without showing how you do it. The court divided, five to three, in the late case; the five maintaining that the means must be new as well as the end, to sustain a patent; while three contended that if the end were new, novelty in the means was immaterial. The majority expressly admit. that where the patentee has not only discovered the principle, but has invented the means by which it is made useful, he may, through a patent for the means, reserve the principle; but they say, where there is nothing patentable in the means, the patent would be for the principle, only, which is not admissible. The minority say, that where a new principle has been rendered practically useful to society by any means, old or new, it is no longer an abstract principle, and the discoverer is entitled to the protection of a patent.

In Morse's patent, both the means and the end are new, the majority, therefore, go far enough to sustain them, and the minority much further.

Morse's friends, indeed, consider the principles of this decision broad enough to cover his broadest claims. They are, therefore, satisfied that the postponement of the decision has arisen, not from any hesitation in the court as to the principles involved, but solely from the voluminous character of the testimony which bears in their applicability to the case—so voluminous that they cannot find time, amidst the bustle of the term, to examine and apply it as the importance of the case demands. I do not think Prof. Morse and his friends need have the least fear as to the ultimate result. A.

[The above is from the "Baltimore Sun," and the reference to the *New York* journals applies to us. The letter above is in the same tone, and employs the same arguments and nearly the same language as that of the Hon. Amos Kendal's letter which we published on page 170.

In reference to the case spoken of, wherein three against five decided that "if the end were new, novelty in the means was immaterial," we wish to say a few words, also a few words respecting patent principles.

A new result produced by old *means* is patentable, such as a new design or an article of manufacture, but then we must separate the result from the means, and not mention the latter at all, for a new result by a patented *means* (a new article of manufacture produced by an old patented machine) does not surely give the man who produces the design—manufacture (result)—the authority to prevent others from using the old machine which is another person's invention, yet this is the idea inculcated in the above opinion embraced in the letter. Nay, we do say, that a man may produce a new result by an old machine, and yet by our patent laws, although he may obtain a patent for the design, he is justly prevented from producing it because he cannot use the machine without the consent of the old patentee. This has been decided over and over again in our courts with respect to Blanchard's patent for turning irregular forms. It was taken out to turn gun stocks, but it will also turn out busts, &c., now no man can use that machine for turning out a new figure—(producing a new result) without the consent of the patentee.

The employment of the word patent *principle* is too often used to confuse a subject, instead of presenting it clearly to the mind.—We humbly confess that we do not know what is meant by the word principle in the foregoing letter. *We* consider that a *patent principle* is the *leading means* in an invention for producing either a new result or an old result in a superior manner; *principle* and *the means of producing a result* are confounded together in the above letter—they cannot be separated—they are one and the same thing, and yet they are spoken of above as being entirely distinct. To talk about principles and *abstract* principles, and leave out of consideration the means of producing results (the machinery) is nonsence. It would be as sensible to talk about human laws for the moon, where not a single thing of life dwells. The principle of Morse's invention is the leading agent he employs in his machine to produce mechanical marks or sounds at a distance, to convey messages, which is his *Electro Magnet.* This was Prof. Morse's own opinion a few years ago, and although lawyers may confuse they cannot alter it.

Moore & Hascall's Patent.

On page 141 we brought to the notice of our readers a very singular case of the application for the extension of a patent, and the grant of a "new" patent, for Harvesting Machines by Moore & Hascall. We pointed out the unparliamentary nature of the proceedings of the Senate, for acting upon the application for the "new" patent, and had hoped that when the Senate came to view the matter calmly, that the petitioners' application for a patent for new improvements would have been dismissed; but this has not been done. On the 24th ult. the same Bill for relief to Moore & Hascall, to grant them an extension of their old patent, which expired two years ago, and which has been two years in public use, likewise to embrace in the Bill new improvements never patented before, was discussed in the Senate again. Mr. Walker, as we said before, has given this subject particular attention, and the information which he presented before the Senate in the discussion, will be peculiarly interesting to a great number of our readers. We will endeavor to present a brief abstract of it:—

"This Bill does not merely provide for a renewal of the old patent for 14 years from 1850, for cutting and cleaning grain, invented by Moore & Hascall, and embraced in their drawings and model, but improvements made by them in perfecting their machine, since the date of their original patent. All this is proposed to be granted without even the solemnity of an oath, that these persons have invented the said improvements—a thing that is required of every inventor by our patent laws, when he makes application for a patent. It is not the extension of a patent, but the grant of a new patent, for what has long since been vested in the public. Some things claimed by these inventors, have long since been patented by others. Patents for some things claimed by these inventors have even expired, and these men want to get a patent for inventions which were patented more than 14 years ago by other inventors, and which are now public property. The friends of this Bill claim it as a mere extension of the original patent. Other persons, when they claim a patent, have to go to the Patent Office and submit their claims, model, drawings, and specifications, to be examined by proper officers, and if they conflict with other older patents, the issue of priority is against them. But here we are asked to steer clear of the Patent Office, to avoid the laws which regulate the issue of patents, and blindly, by legislation, to give an exclusive right to these gentlemen to do what does not appear in their drawings or specification, and also to give them the benefit of every thing which they may be able to show, by any kind of testimony, to have invented for seventeen years back, down to the present day. This Bill sweeps away the rights of McCormick, Hussey, and Casey, and every other person who has made improvements, and improved machinery in this respect. It sweeps from the books of the Patent Office every vestige of right which those parties have; and this, too, by legislative adjudication contrary to any precedent that can be shown, or in fact that ever did exist. I have begged and prayed Mr. Moore to take a simple extension of his patent but he will be contented with nothing short of having, by a legislative adjudication, these exclusive rights and privileges granted to him. I appeal to the Senate not to step forward in this manner and take out of the hands of the Judiciary and out of the hands of the Patent Office this important question, and place it in the hands of a company, to constitute a monopoly, against which there can be no hope of resistance. I move to re-commit this Bill to the Committee of Patents, to make it a simple Bill, extending only the patent of these gentlemen."

This motion was agreed to by a vote of 22 ayes, 18 noes. We are surprised that a single Senator voted in the negative after such a speech, and the presentation of the case in such clear and forcible language. The Committee on Patents, in the first place, should have dismissed the application as being a subject respecting which they could not justly legislate.

Extension of a Patent.

On the petition of Hezekiah Haynes, of Middletown, Vt., praying for the extension of a patent granted to him on the 18th of June, 1839, for an improvement in the mode of constructing rake-teeth, for seven years from the expiration of said patent, which takes place on the 18th day of June, 1853.

It is ordered that the said petition be heard at the Patent Office on Monday, the 16th of May, 1853, at 12 o'clock M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections specifically set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which which will be furnished on application.

S. H. HODGES, Com. of Pat.

Washington, March 2, 1853.

Gold Seeking Mania.

Gold is beginning to be quite a common article: discoveries of veins of the once precious metal are bruited every week in some one locality or other, and it is now stated to have been found in the territory of the Cherokee Nation. According to statements published great excitement existed, owing to the reported discovery of gold in large quantities on Horse Shoe Creek, in the northern part of the Nation. The yield was said to be $10 to $12 a day per man. We do not undertake to endorse the veracity of all the various reports which, when inquired into, are very often found to be fallacious, but in this case there *is* much probability that it is true. Gold has been often found in various parts of the Cherokee Nation.

The apparatus which was sent out by the British Government, some years ago, for distilling *fresh water from Lake Erie*, is still in existence at one of the Canadian Navy Yards, and it is an undisputed fact that all the war vessels intended for the navigation of the lakes in 1812, were well and thoroughly supplied with tanks and casks for containing *fresh water.*

© 1853 SCIENTIFIC AMERICIAN, INC

TO CORRESPONDENTS.

O. R., of Wisconsin—Wo think you had better go on with your experiments, for a great many patents have been taken out, but none have superseded the old plan. Practice alone will prove the value of your invention; the application of the gas to the lead while in a molten state we think is new. You are the best judge of the utility of the "pelvimetre," being in a position to use it; it is a new device. We do not sell inventions or patents.

U. B. B., of Pa —There appears to be some novelty in your arrangement of a railroad brake; we advise you, however, not to use a rack and pinion, as it might not prove of sufficient strength in an emergency.

H. C. S., of N. H.—The general impression we find to be contrary to our judgment; we do not think the Ericsson applicable to small stationary purposes.

J. P. M., of Vt.—We think your Switch Alarm to be new, and we cannot see why a patent should not be granted; it would be useful if made to operate well.

C. W. B, of Ohio—There appears to be some novelty in your suggestions about flying machines, but we really do not discover in them anything of a valuable or practical character to justify you in doing anything more with the matter.

F. C, of N. C.—We sent you Vols. 5, 6, and 7, in sheets, by mail, on the 9th inst., and credited your subscription up to the end of the present volume.

S. F, of Pa —We have never seen the same plan proposed for working a magnetic telegraph by the train of cars, but a wire telegraph has been proposed to us more than once: the idea is a good one. We cannot furnish the back numbers for the present year.

D. H., of Ct.—Yours has been received and will meet with attention.

G. A. W, of N. O.—We do not know of any patent on the article mentioned in your letter.

J. R. G., of Va.—We have seen a shingle machine constructed upon the same principle as yours, and cannot advise you to make an application.

V. L. C., of Tenn.—We see nothing in either of your inventions to justify an application for a patent; we credit you with $2 on subscription to the Sci Am.

H. A. H, of Ind.—We do not see any chance for a patent on the device for preventing drift wood from lodging on piers, bridges, etc.

R. F., of Pa.—We have no engine of the size you want; $5 received on account of subscription.

J. A, of Conn.—There is no novelty in your oil cup; essentially the same thing was patented last year.

J. R. K., of Geo.—We do not know of any article better than copal varnish for the purpose named.

S F., of N. Y.—No varnish is put upon the articles you mention—clock work; you must burnish up better; a fine varnish made of clean lac, dissolved in alcohol, is excellent for covering articles that are exposed to the weather.

F. S. C., of Boston—The pressure of water increases with the velocity; how can it be otherwise? Multiply the weight into the velocity, and you have the momentum. Try and press the water in a close full vessel with a velocity of 15 feet per second, and find out the resistance to satisfy yourself.

W. H. P., of Mo.—The only reason we can give for your water not rising above D, is, that there must be a difference of weight in favor of the column of water to be raised in tube E over the inlet tube; a column of inlet water will only balance another of equal weight and no more: a tube of one inch diameter will not force water in a connected tube of two inches diameter up to the same level by its gravity: look into this closely.

J. C. S, of N. Y.—Your plan about the employment of the heated gauze, for the hot-air engine, is the same as that employed by Sir George Cayley, a number of years ago: practically, neither hot air, "dry" steam, nor heated gases answer to work machinery. The increasing pitch answers the same purpose as that which you propose in the propeller; Ericsson's patent embraced the principle of a series of blades having different velocities.

R. M., of Nova Scotia—Your insulator appears to be good, but it surely cannot be made as cheap as a glass one, and cheapness is an important item; in our opinion glass is also a better material.

H. F. S., of Pa —If we obtain the desired information you will see it in our columns.

M. K., of N. Y.—Our books are correct, the notice got into your paper by mistake.

B.F.W., of La.—We have examined the sketches of your alleged improvements in rotary steam engines, and think they embrace novely. You ask us what we think of them: to be candid—not much, and i hey can be made to operate successfully we shall be mistaken.

Money received on account of Patent Office business for the week ending Saturday, March 12:—

J. B., of R I., $55; S. G. W, of N. Y., $30; W. M. & Co, of N. Y., $57; J. O., of N. Y., $10; A. W. R., of $5; R. M. F, of N. Y., $30; W. H. M., of Ind., $10; C. P., of Mich., $20; H. G. DeW., of N. Y, $30; T. S, of N. Y., $25; L. D. of N. Y., $60; J. N. A., of N. Y., $20; R. P., of Vt., $20.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday March 12:—

F. H., of Pa.; Y. S., of N. Y.; L. K., of N. Y.; L. D, of N. Y, (2 cases); J. N. A., of Ct.; R. P., of Vt; F. C. G., of N. Y.; C. H. P., of N. Y.

A Chapter of Suggestions, &c.

BACK NUMBERS AND VOLUMES—In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:—Of Volumes 1, 2 and 3—none Of Volume 4, about 20 Nos., price 50 cts. Of Volume 5, all but eight numbers, price, in sheets, $1. Of Volume 6, all; price in sheets, $2; bound, $2,75 Of Vol. 7, all; price in sheets, $2; bound, $2,75. Of Vol. 8, none.

ADVERTISEMENTS.

Terms of Advertising.

4 lines, for each insertion.	-	-	50cts
8 " " "	.	.	$1,00
12 " " "	.	.	$1,50
16 " " "	.	-	$2,00

Advertisements exceeding 16 lines cannot be admitted; neither can engravings be inserted in the advertising columns at any price.

☞ All advertisements must be paid for before inserting.

PORTABLE STEAM ENGINES—The subscriber is now prepared to supply excellent Portable Engines, with Boilers, Pumps, Heaters, etc, all complete, and very compact, say 1, 2, 2 1-2, 3, 4, 6, 8, and 10 horse power, suitable for printers, carpenters, formers, planters, &c, they can be used with wood, bituminous, or hard coal; a 2 1-2 horse engine can be seen in store, it occupies a space 5 feet by 3 feet, weighs 1500 lbs., price $240; other sizes in proportion. S. C. HILLS,
27eotf Machinery Agent, 12 Platt st, N. Y.

FOR SALE—A new Horizontal Steam Engine, complete, with pumps 7 inch bore, 2 feet stroke, well suited for a saw mil; price $25; also one second-hand, nearly new, perpendicular, in iron frame work, complete, with pump and governor, 4 horse power. price, $175: all warranted to work well and of sound materials. Address C. SIMON, Louisville, Ky., (Main between 11th and 12th sts) 27 2*

NORCROSS ROTARY PLANING MACHINE, —Decided by the Circuit Court not to infringe the Woodworth Machine—I now offer my Planing Machines at a low price; they are not surpassed by any machines as to amount or quality of work. Tonguеing and grooving machines also for sale, doing one or both edges as desired; 80 machines now in operation. Address me at Lowell, Mass.
27 10* N. G. NORCROSS.

WANTED—By a practical mechanic and manufacturer, a situation to superintend a cotton, woolen, or flax weaving and spinning concern, North or South, having a good practical knowledge of the erection of mills, and mill sites, with the recent improvements in machinery for manufacturing purposes; feels qualified to conduct a manufacturing establishment to compete with any in this or any other country. Address "E. W," box 773, P. O., New York City. 1*

BLACK LEAD CRUCIBLES—The subscriber is now manufacturing and keeps on hand an assortment of the above crucibles for steel melting, brass and other metal workers, which are warranted equal to any now in use. Orders respectfully solicited by DANIEL ADEE, Agent, 107 Fulton street, N. Y. 27 4*

GEAR CUTTING—To order, executed with dispatch, straight, spiral, and bevel, at the machine shop No. 60 Vesey st, N. Y. G. W. WIGHT. 27 4*

LEE & LEAVITT—Manufacturers of every description of Cast Steel Saws, No. 53 Water street, between Walnut and Vine, Cincinnati O. 27 6m*

THE PROPRIETORS OF JAMES RENTON'S Patent, for the manufacturing of wrought iron direct from the ore, are desirous of introducing the invention generally, and invite parties who may wish to negociate for rights for States and counties, or for furnaces, to make immediate application, and to visit the works at Newark and examine for themselves; they are disposed to make liberal arrangements with responsible parties who make an early application. Applicants for rights in the State of New Jersey may address Hon. J. M. Quinby, President of the American Iron Co. Inquiries or application for other States may be made to the subscribers. The furnace which is now in operation at the American Iron Co's works, corner of Parker and Passaic sts., Newark, N. J., is attracting considerable interest. Gentlemen from all parts of the county have visited the works, examined the operation, and express the highest commendation of it. JAMES RENTON, A. H. BROWN, Proprietors, Newark, N. J. 26 5*

HAVING USED A COPY of "Thirty Receipts for Coloring Cotton and Wool," published at Quebec, and of which E. D. Campbell is proprietor for the United States, I recommend to every person who has coloring to do to procure a copy of this work, as I think it the best of any I have ever seen. Having been brought up to the coloring business, and followed it for over twenty years, I deem myself qualified to judge of its merits; the price is a mere trifle compared with the value of the work.
LORENZO HALL.
Peace Dale, R I.
Enclose One Dollar on any solvent bank to the subscriber by mail, and the above work will be forwarded by return mail, free of postage. Address E. D. CAMPBELL, Campbell's Mills, Windham, Co., Conn. 26 2*

NOTICE TO FOUNDRIES—The subscriber informs his patrons and the public that he is prepared to furnish FACINGS of every description for Foundry purposes, at the shortest notice and on the most reasonable terms. Facings delivered in Boston free of charge. Orders directed to him at Neponset, Mass, will meet with prompt attention.
25 4eow* CHARLES ALDEN.

CLOCKS FOR CHURCHES, COURT HOUSES AND OTHER PUBLIC BUILDINGS. Time-Pieces for Session and Vestry Rooms Hotels, Railroads etc.; Regulators for astronomical purposes, Jewellers, and others, when the most perfect time is desired. The improvements introduced by the subscribers, enable them to warrant an accuracy of time-keeping, unequalled (so far as they can learn) in Europe or America. Glass dials, for illuminating and other kinds, furnished. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, Long Island.
"At the Oakland Works of Sherry & Byram there are made some of the finest clocks in the world."
—[Scientific American. 19 13eow

BRIDGEWATER PAINT MANUFACTURING COMPANY DEPOT, 125 Pearl and 78 Beaver streets, New York, have on hand a large supply of this paint, and are prepared to receive orders for dry packages of 200 lbs. and upwards, and in oil of assorted colors in kegs of 25, 50, and 100 lbs. For wood, iron, stone, and brick work, it has no equal. Painters are using it with great success on brick buildings (the natural color resembling brown stone), on tin, canvas, or shingle roofs, villas, barns, fences, depot buildings, railroad cars, bridges, &c; also for decks and bottoms of vessels. The black has been found superior to any other, for hulls of vessels, being more durable, possessing a greater body and cheaper. From its spark and cinder-proof qualities, it is well adapted to all kinds of wood work, where there is danger from fire. Testimonials of its virtues, and specimens on wood, tin, canvas, &c, may be seen at the depot. Letters must be addressed to
25 4* R. BOGERT, General Agent.

TO ARTISTS, DESIGNERS, &c., one hundred dollars premium.—The government of the Massachusetts Charitable Mechanic Association having determined to procure a new diploma to be used at the Exhibition the present year, hereby offer a premium of one hundred dollars for the best original design of one Artists and others who may be disposed to compete, will please send their drawings to the secretary on or before Saturday the thirtieth day of April next. Each drawing must have some mark upon it, and must be accompanied by a sealed envelope, bearing a similar mark, and containing the address of the party sending it. For the design which shall be adopted by the executive committee the above premium will be paid The other designs will be returned to their respective owners on demand. Any further information may be obtained by application to the Secretary. In behalf of the Government, FRED. H. STIMPSON, Secretary.
Boston, Feb. 23, 1853. 26 3*

MAXWELL IRON WORKS, 259 Bowery, N. Y. Steam engines, lathes, drilling and planing machines, machinists' tools of every description, printing, lithographic and copperplate presses, bookbinders' cutting and embossing presses, rolling machines and squaring shears, iron backing presses, improved standing press, proof and transfer presses, cylinder newspaper press, self-inking apparatus, and every article in the press line, necessary in a priniing office or bindery, made to order, on reasonable terms. All kinds of repairing done with the greatest despatch. N. B —Steam fire pumps made 10 per cent. cheaper than at any other establishment. 26 4*

PATENT LAWS OF THE UNITED STATES, and information to inventors and patentees; for sale at the Scientific American office. Price 12 1-2 cents.

PALMER'S PATENT LEG—Manufactured by Palmer & Co., at 5 Burt's Block, Springfield, Mass., for New England and New York State, and 376 Chestnut street, Philadelphia; in every instance of competition in the Fairs of the various Institutes of this country, has received the highest awards as "the best" in mechanism, usefulness, and economy. At the 'World's Fair," London, 1851, in competition with thirty other varieties of artificial legs (by the best artists in London and Paris), it received the Prize Medal as the best.
25 20* (16e3w)

SPILLARD AND DODGE—Arch Street Hall Brass Foundry, and manufactory of plumbers' brass; water, steam, and gas cock constantly for sale upon reasonable terms; 213 Arch street, Philadelphia, Pa. 25 8*

AARON KILBORN, No. 4 Howard st, New Haven, Conn., manufacturer of Steam Engines, Boilers, &c. Noiseless fan blowers and machinery in general 25 10*

NEW PATENT RIGHT FOR SALE—State rights to make and sell the premium machine for Paring, Coring, and Quartering Apples, &c.; patented on the 25th Jan'y, 1853, and illustrated in No. 23, present volume Scientific American, can be had at reasonable prices by applying, post-paid, to the sole proprietors. SMITH & FENWICK,
25 4 14 Vandam st., N. Y.

COCHRAN'S CRUSHING MACHINE—Can be seen in daily operation in Thirteenth street, between 9th and 10th avenues. Parties in want of a machine for crushing and pulverizing quickly and cheaply Quartz Rock, Iron, Lead, Copper, and Silver Ores, and other mineral substances equally hard, are invited to witness the operation of these powerful and simple, but yet effective machines. For further particulars apply to E. & J. BUSSING & CO., No. 32 Cliff st., Y. N. 23tf

SAND PAPER, GLUE—Excelsior Sand and Emery Paper. ABBOT'S Manilla Sand and Match Papers. Emery Cloth, Emery, Emery Grit, Pumice Stone ground and in lump, of very superior quality; also Glue of all grades, and in quantities to suit purchasers at the lowest manufacturers' prices, for sale by WILLIAM B. PARSONS, 284 Pearl street.
24 8*

PATENT FOR SALE—HOLLING'S Improvements in Hose Pipes, issued Jan. 4, '53, titled Regulating Water-spread for Fire Engines, &c. The above Right, &c, will be sold cheap as the owner is about leaving for Australia. All communications addressed to box 39 Chelsea P. O., Mass., will be promptly attended to. 24 4*

COTTON MACHINERY—Of the most approved plans, from the best shops in the country:—drawings, specifications, and general arrangements for the machinery, furnished at the lowest rates, by W. B. LEONARD, and E. W. SMITH, 75 Merchants' Exchange, New York. 23tf

WOODWORTH PLANING MACHINES, ON hand and manufactured to order, of superior quality, at reduced prices, warranted perfect. Also steam engines and other machinery. by JOHN H. LESTER, 57 Pearl street, Brooklyn, L. I. 22 8*

E. HARRISON'S UNEQUALLED FLOUR AND GRAIN MILLS—Their frames and hopper are cast-iron, and the stones French Burr, 30 inches in diameter; grinds of wheat and corn 20 bushels an hour, weighs fourteen hundred pounds. These mills, constructed upon a new principle, have become widely known, and are producing a revolution in milling. Cash orders promptly supplied, and the mills warranted to work in the best manner. The patentee offers $500 reward for any mill which will do an equal amount of work with the same power and dressing. Made and for sale at the corner of Court and Union streets, New Haven, Conn, by
20 12* EDWARD HARRISON.

BEARDSLEE'S PATENT PLANING Tonguеing and Grooving Machines—These celebrated machines have now been generally introduced in various portions of the United States. More than thirty are now in successful practical operation in the State of New York alone. As an illustration of the extent of work which they are capable of performing, with unrivalled perfection, it is sufficient to state that, within the last six months and a half, over five millions of feet of spruce flooring have been planed, tongued and grooved by one of these machines at Plattsburgh, N. Y., never running to exceed ten hours a day. The claim that the Beardslee machine was an infringement upon the Woodworth patent, has been finally abandoned; and after the proofs had been taken, the suit instituted by the owners of that patent was discontinued, and the whole controversy terminated on the first of November last. Applications for machines or rights may be made to the subscriber, GEO. W. BEARDSLEE, 57 State street, or No. 764 Broadway, Albany. 15tf

W. P. N. FITZGERALD, Counsellor at Law has recently resigned the office of principal Examiner of Patents, which he has held for many years, and is ready to assist, professionally, in the preparation and trial of patent causes before the U. S. Courts in any of the States, and before the Supreme Court of the United States. He also acts as Counsel in cases before the Patent Office, and on appeals therefrom, but does not prepare applications for Patents Office corner of E and 8th sts., Washington, D. C. 18 tf

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery oil, Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 13tf

A. B. ELY, Counsellor at Law, 52 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 16tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. and 60 Beaver, N. Y.—Leather Banding Manufactory, N. Y.—Machinists's Tools, a large assortment from the "Lowell Machine Shop," and other celebrated makers. Also a general supply of mechanics' and manufacturers' articles, and a superior quality of oak-tanned Leather Belting.
27tf P. A. LEONARD

PAINTS, &c. &c.—American Atomic Drier Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.
QUARTERMAN & SON, 114 John st.,
27tf Painters and Chemists

CHILDS, TAINTER & CO., Worcester, Mass., Builders of Daniel's Planers, with Read's feed motion, and J. A. FAY & CO's. celebrated Woodworking Machinery. 24 8*

BLACK LEAD CRUCIBLES and Melting Pots of any form, size and quality, made to suit customers, for 3 cents per number, and warranted equal to any of the kind manufactured in the world. by D. H. PURINTON, Somerset, Mass. 23 10*

PATENT DRAFT BOARDS—With extension scales, sheet fasteners, and T rule. See Reports of Worcester Fair, Maryland State Fair, &c. &c, with their awards. $10 complete. Sent by express Address, post-paid, CHAMBERLIN & CO., Pittsfield, Mass. 16tf

SHINGLE MACHINE—WOOD'S PATENT—JAS. D JOHNSON, of Bridgeport, Conn., proprietor of this justly celebrated machine, is now on a tour through the South western States, and will exhibit the machine in operation in the principal towns and cities. Notice will be given in the local papers where and when it may be seen; he will dispose of machines and rights upon reasonable terms. 20tf

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.
This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up Address (post-paid) MUNN & CO.
At this Office.

FALES & GRAY (Successors to TRACY & FALES), RAILROAD CAR MANUFACTURERS—Grove Works, Hartford, Connecticut. Passenger, freight, and all other descriptions of railroad cars and locomotive tenders made to order promptly. 1tf

C. B. HUTCHINSON'S PATENT STAVE Cutting Machines, the best in use, and applicable alike to thick or thin staves; also his Head Cutting and Turning, and Stave Jointing Machines.
For machines or territorial rights, apply to C B. HUTCHINSON & CO., Syracuse, N. Y. 9tf

J. D. WHITE'S PATENT CAR AXLE LATHES —also Patent Engine Screw Lathes, for boring and turning tapers, cutting screws, &c. We manufacture and keep constantly on hand the above lathes; also double slide Chuck and common Hand Lathes, Iron Planers, S. Ingersol's Patent Universal Ratchet Drill, &c. Weight of Axle Lathe, 5,500 lbs; price $600; Engine Serew Lathe, 1400 to 7,000 lbs; price $225 to $675. BROWN & WHITE,
27tf Windsor Locks, Conn.

NEW HAVEN MANUFACTURING COMPANY, Tool Builders, New Haven, Conn., (successors to Scranton & Parshley) have now on hand $25,000 worth of Machinist's Tools, consisting of power planers, to plane from 5 to 12 feet; slide lathes from 6 to 18 feet long; 3 size hand lathes, with or without shears; counter shafts, to fit all sizes and kinds of universal chuck gear cutting engines; drill presses, index plates, bolt cutters, and 3 size slide rests. The Co are also manufacturing steam engines. All of the above tools are of the best quality, and are for sale at 25 per cent. less than any other tools in the market. Cuts and list of prices can be had by addressing as above, post-paid. Warehouse No 1, Platt st., New York, S. C. HILLS, Agent N. H. Manf'g Co. 19tf

© 1853 SCIENTIFIC AMERICIAN, INC

SCIENTIFIC MUSEUM.

Candles equal to Wax or Sperm, made from Tallow and Lard.

The annexed specification describes the improvements of J. B. Moinier and Pierre Hippolyte Boutigny, of Paris, for the preparation of fatty oils and tallows for candles, the patent for which was granted on the 8th of last month (Feb.) and the claim published on page 182, this volume, Scientific American.

"The improvements are adapted to the treating of all animal and vegetable fatty matters—such as tallow, lard, palm oil, &c., The improvement applies especially to the treatment of fatty matters in combination with alkalies by passing a strong current of sulphurous acid gas through the said combination. The effect of the use of sulphurous acid gas, and subjecting the mixture of fatty materials with alkalies to its action is to free the compound from impurities, and harden it, so that candles will be produced therefrom, equal to wax or sperm, and giving as brilliant a light. Sometimes, instead of mere sulphurous acid gas being employed, it may be used in combination with the bases—a sulphite—containing calculated quantities of sulphurous acid. The use of the gas requires no alteration in the mechanical processes of preparing fatty acids with alkalies; the mixture of any fatty acid, and an alkali is simply treated with sulphurous acid gas by being exposed to its action for two successive hours. After this the residue or product is cleared of the gas by being washed by injecting high pressure steam among it. This is the whole invention or discovery; the matter is treated with steam until it is perfectly free from the gas.

To render tallow, grease, or lard of a very superior quality, they have simply to be melted, then exposed to a current of the sulphurous acid gas for two hours; then steamed as above described, when the said matters will be found to be greatly improved."

A patent was granted for the discovery in France, on the 19th May, 1852, and it has been deemed of no small importance and value, or the inventors would not have patented it here.

The above described invention is not an identical transcript of the specification filed in our Patent Office; we have rendered the description more plain and full we believe, than the said document.

The claim of the patent will be found by our readers on the page referred to. Knowing how great the lard, tallow, and sperm interests are in our country, and knowing the importance and value to our people of any improvements in the making of candles, we are persuaded that the above information will be of great interest to a large number of our readers.

We would state here, however, in respect to this patent, that there does not appear to be anything new in it, but the employment of sulphurous acid gas instead of sulphuric acid. It is an old and well known plan to purify tallow to produce stearic acid for beautiful candles by decomposing lime soap with sulphuric acid, and the employment of steam to produce decomposition. The way to do this has been to melt tallow in troughs containing water, by steam heat, then introduce milk of lime—an alkaline base—which is kept agitated for a few hours, when the whole is converted into a lime soap. This lime soap without water is treated in a second trough with sulphuric acid, aided by the heat of steam, by which process the sulphuric acid and lime, combine and form the sulphate of lime, which is precipitated to the bottom and a clear transparent layer of fat oil is found on the surface, which, on being transferred to moulds, solidifies into blocks. These blocks contain a mixture of oleic and stearic acids, which are separated from one another by mechanical pressure.

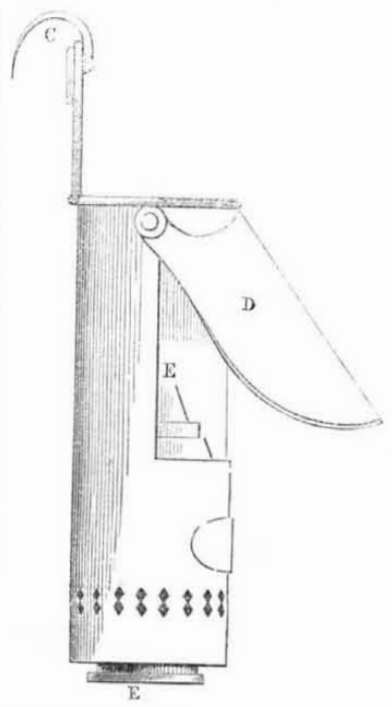
We repeat again, that there appears to be nothing new in the specification obtained from our Patent Office, excepting the use of *sulphurous acid gas*, as a substitute for sulphuric acid.

A company of Englishmen are now working successfully a copper mine in Cherokee Co., N. C. The copper ore is said to be strongly impregnated with silver. The Asheville News states that a substance very much resembling, and believed by many to be the real diamond, has been recently found in Buncombe Co. It cuts glass and steel. The finder has several pieces of large size.

Grime's Patent Carriage Reading Lamp.

All travellers by railway must feel the difficulty of reading with the lights furnished at the expense of the company. Even in first-class carriages the persons occupying the central seats alone can prosecute their studies with advantage or pleasure. In second-class carriages the railway light is in many cases more sparingly supplied. Third-class carriages are often left in utter darkness—an arrangement which is in every respect objectionable. We hold that all railway carriages should be lighted; and even if that rule were invariably observed, all those travellers who desire to improve their time, would find advantage from the employment of the patent reading lamp.

The subjoined cut shows the manner in which this lamp is used.



C is the hook which is affixed to the carriage. We once observed an ingenious traveller who carried a small bodkin, such as printers use, for the purpose of fixing in the carriage, he suspended his lamp from the bodkin. D is a reflector which shades the eyes, and throws the light of the candle, fixed in the tube, E, upon the book. The lamp is cheap, light, portable, and useful.

[The above is from the "London Expositor;" the lamp is exceedingly useful for railways in England, but before it can be used on our roads, the tracks will have to be better constructed. We have never attempted to read on one of our cars without soon experiencing a dimness of vision and a pain in the head. There is such a shaking and jolting of the cars on our best roads, that it is very difficult and disagreeable for any person to read. The English tracks are more solid, and passengers slide along as smoothly as if sitting in a parlor. Our railroads, however, have wonderfully improved, and are improving every day, so that in a few years, we believe—when we become more consolidated—we will have as fine tracks as any nation in the world. The above lamp will then not be forgotten; it is small and compact and can easily be carried in the corner of a traveller's coat pocket.

It is also a useful lamp for a student to set in any nook or corner and read a favorite author. The lamp, it will be observed, is seated in the inside of an outer tube or case, and is enclosed entirely when the cap, D, is shut down. We commend it to the attention of our lamp makers.

Information Wanted.

Can any of our readers inform us of the residence of L. S. Chichester, patentee of the flax dressing machine illustrated in No. 44, Vol. 7, Scientific American, or should this meet his eye will he please call at our office without further notice.

Beautiful New Iron Building.

Just when modern improvements in hotel arrangements had arrived at that degree of perfection that it seemed nothing new could be added, Messrs. Stetson & Coleman, the enterprising proprietors of the "Astor," have surprised the city by throwing open a novel and beautiful feature in their extensive establishment, viz., a spacious and beautiful Hall—the "Astor House Exchange." The structure is entirely of glass and iron, in the form of an ellipse, eighty-six feet by fifty-one in diameter. The roof is arched elegantly, embellished with fresco painting, and supported by two columns. It is well lighted from numerous circular lights in the roof, and illuminated at night by four chandeliers from the columns and thirty-four burners round the apartment. The building is constructed on the patent principle for iron buildings invented by Mr. Bogardus, of this city, of the firm of Bogardus & Hoppin, Centre street, the constructors of the building. The style of the architecture, is novel and graceful, exhibiting much to admire and please. The roof is a new feature in architecture; it is constructed on the suspension principle, having girders springing in graceful curved lines from post to post, uniting strength and lightness in a most ingenious manner. This building is well worthy of great attention,—it is something in itself entirely new and without a rival in the world, both as it respects design and execution. The principle upon which the roof is constructed—the means employed and as arranged to sustain it—can be carried out to any extent. An iron building can thus be erected to extend for miles and cover acres as easily as to make one of a few feet in diameter. We commend the plan to our city authorities for the construction of iron sheds on our docks, it is the very thing required for such purposes.

New Application of the Electric Light.

Public curiosity which has been much stimulated by repeated and partially successful experiments with the electric light, is likely to be soon fully satisfied by seeing that singularly beautiful and powerful application of voltaic electricity brought into permanent and profitable operation. It will be recollected that up to the present time two serious obstacles have always opposed themselves to the use of this light as a means of illumination; one being the difficulty of obtaining a steady and permanent light, the other the great cost of the materials employed in its generation. These two difficulties have been at length grappled with by a young but already distinguished man of science (Dr. Watson), who, by a series of patient and highly philosophic experiments, has attained certain results, which, he has sanguine hopes, will ultimately lead to the successful commercial application of the light to various purposes. The uncertainty and flickering of the light being caused by the gradual wearing away of the points of the electrodes, and the consequent widening of the space through which the fluid must pass, Dr. Watson has attempted to obviate the difficulty, first, by the employment of a new and patented material in the electrodes, which makes them less liable to wear in their incandescent state; and, secondly, by the action of a magnet placed in the base of the lamp, which, by its attractive powers, restores any deviation which may have taken place in the relative positions of the electricity under the influence of the light. By this invention the lamp is rendered self-regulating or automatic, and the first great difficulty, the inconstancy of the light, is, to a considerable extent remedied. The light having thus been got into working order, the next point to be considered was the great commercial question of cost as until the invention could practically be made to pay, there was little hope of its being brought into general application. Without entering into any detailed technical explanation, it will be sufficient to state that this end is attained by the substitution of cheaper metallic plates in the construction of the batteries, and the employment of such chemicals in the generation of the electric fluid, as shall, having first performed their illuminating duties, undergo such changes in their own forms as to become articles of considerable commercial value and ready sale. For the plates the inventor has substituted cast-iron and platinized lead for the more expensive metals—silver, copper, and platina; and an idea of the saving here effected may be formed from the fact, that whereas a single plate of platina costs £3, one of platinized lead or cast-iron can be made for 1s. For exciting agents or electrolytes, as they are called, the patentee employs in one battery prussiate of potash, which, by the galvanic process, is converted into those valuable articles of commerce, Prussian blue, and ultramarine. In another battery, which is excited by nitro-sulphuric acid, he gets, with the addition of bichromate of potash, the well-known color for carriage builders, chrome yellow, and by another chemical combination, he gets red, the third primary color, having thus, it is almost needless to add, obtained the bases of almost all the pigments used in the useful or decorative arts.

[The above is from the "London (Eng.) News,"—it will be a great boon to science if that which is stated is actually true. We can well see how *Prussian blue* is formed, but how ultramarine can be thus formed surpasses our comprehension, for we have always understood that the said substance contained alumina. The idea that silver, platina, and copper were the only metals heretofore used for the battery, is ridiculous. Zinc and sulphuric acid—the old substances—form a salt as profitable as that which can be made out of the prussiate of potash and iron plates,—that is, when we take the price of the materials before being used, into consideration.

Liebig lately commenced a course of public lectures at Munich, with a lecture on the nature of flame, the influence of other bodies upon its intensity, &c., accompanying the whole with a great variety of experiments.

LITERARY NOTICES.

BOOK OF THE WORLD—No. 7; Weik & Wieck, 195 Chesnut st, Philadelphia. The above number of this popular work is adorned with a portrait of Oken, the great Reformer of the Natural Sciences, and three colored engravings, two of which, as usual, are descriptive of natural history. This is a peculiar feature of the publication, and recommends it particularly to the lovers of natural science—good colored engravings being a very useful aid in acquiring a knowledge of Botany, Conchology, and of Natural History in general. In this number we have colored engravings of the Triton or Water Salamander, of the Thibaudia Macrantha, or large flowered Thibaudia, with a similarly colored illustration of a German Tale, which will please the young folks.

SHIPBUILDERS' MANUAL—No. 3 of this excellent and useful publication, by J. W. Griffiths, practical shipbuilder, is just issued, and for sale at No. 333 Broadway, W. Stephenson, agent.

THE SOUTHERN ECLECTIC—No. 1, Vol. 1; by J. H. Fitten, Augusta, Ga. Terms $3 per annum. The number before us contains several able selections from European Journals, and bears evidence of judicious management. We hope this journal will succeed

MECHANICS

Manufacturers and Inventors.

A new Volume of the SCIENTIFIC AMERICAN commences about the middle of September in each year. It is a journal of Scientific, Mechanical, and other improvements; the advocate of industry in all its various branches. It is published weekly in a form suitable for binding, and constitutes, at the end of each year, a splendid volume of over 400 pages, with a copious index, and from five to six hundred original engravings, together with a great amount of practical information concerning the progress of invention and discovery throughout the world.

The Scientific American is the most widely circulated and popular journal of the kind now published. Its Editors, Contributors, and Correspondents are among the ablest practical scientific men in the world.

The Patent Claims are published weekly and are invaluable to Inventors and Patentees.

We particularly warn the public against paying money to Travelling Agents, as we are not in the habit of furnishing certificates of agency to any one.

Letters should be directed (post-paid) to
MUNN & CO.,
128 Fulton street, New York.

Terms! Terms! Terms!

One copy, for One Year	$2
" Six Months	$1
Five copies, for Six Months	$4
Ten Copies for Six Months for	$8
Ten Copies for Twelve Months,	$15
Fifteen Copies for Twelve Months,	$22
Twenty Copies for Twelve Months	$28

Southern and Western Money taken at par for subscriptions, or Post Office Stamps taken at their full value.

© 1853 SCIENTIFIC AMERICIAN, INC